VOLUME IV.

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1941

No. 265

FEDERAL POWER COMMISSION AND ILLINOIS COMMERCE COMMISSION, PETITIONERS

vs.

NATURAL GAS PIPELINE COMPANY OF AMERICA AND TEXOMA NATURAL GAS COMPANY

No. 268

NATURAL GAS PIPELINE COMPANY OF AMERICA AND TEXOMA NATURAL GAS COMPANY, PETITIONERS

vs.

FEDERAL POWER COMMISSION AND ILLINOIS COMMERCE COMMISSION

ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT

Petitions for certiorari filed July 12, 1941, July 14, 1941

Certiorari granted October 13, 1941

IN THE

United States Circuit Court of Appeals
For the Seventh Circuit

No. 7454

NATURAL GAS PIPELINE COMPANY OF AMERICA AND TEXOMA NATURAL GAS COMPANY,
Petitioners,

vs.

FEDERAL POWER COMMISSION AND ILLINOIS COMMERCE COMMISSION,
Respondents.

Petition for Review of Interim Order of the Federal Power Commission.

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1445 E. D. OSTRANDER, a witness for complainant, Illinois Commerce Commission, testified:

(November 6, 1939.)

Direct Examination by Mr. Booth.

My name is E. D. Ostrander. I live in Evanston, Illinois, and I am supervisor of the Rates and Research Section of the Illinois Commerce Commission.

My academic training included a degree of Bachelor of Science from the Kansas State Teachers College, Emporia, Kansas, and a degree of Master of Arts from the University of Chicago. I subsequently took some graduate work in public utilities at Northwestern University. My academic training was in accounting, statistics, mathematics, finance, money and banking, economics, public utilities and similar fields.

In 1929 and 1930, I spent a year with the Investment Research Corporation of America at Detroit, Michigan, as an assistant to Dr. Lionel D. Edie, the Corporation's economist. That organization performed an investment and economic advisory service for a group of investment trusts. My work with the firm covered statistical and economic research with regard to many phases of business activity including particularly studies of corporate profits, price-earnings ratios and relationships, statistical curve fitting, index number construction, statistical corrections of data for seasonal variation and so forth.

During the latter part 1930 and the first part of 1931, I spent about six months with James O. McKinsey and Company of Chicago, a firm of business engineers and public accountants. My work with this firm was primarily public accounting.

In May of 1931 I went with the firm of Emery, Peck and Rockwood Company of Chicago, investment bankers, and was with that house and its successor until coming with the Illinois Commerce Commission in October of 1933. My work with the investment house included the preparation of prospectuses and sales memoranda, the study of indentures and other agreements, investment counsel work, and a number of routine duties such as keeping books for two small hydro-electric projects, including negotiations with

trustees in regard to interest and principal payments, insurance policies and so on.

I have been employed by the Illinois Commerce Commission since October, 1933. In general my work with the Commission has been of a research character, but in a number of different fields. Included among these are statistical studies of the revenues of Illinois public utilities, rate analyses and comparisons, studies in relation to accounting and statistical procedure and reports of the utilities, research in connection with the problem of fair rate of return, studies in regard to cost of money, economic conditions, and various statistical and financial problems for the Commission.

1446 I have testified in several cases before the Illinois Commerce Commission. In Docket No. 23015, a citation against Peoria Water Works Company to show cause why its rates for water service should not be reduced, I presented testimony in regard to the cost of money to the company. In Docket No. 22337, an electric rate citation involving Commonwealth Edison Company, I presented testimony with respect to the company's intercorporate relations, cost of money, the relief situation in Illinois, and some statistical computations in regard to working capital. In Dockets No. 23780 and 24792 involving applications by the Peoples Gas Light and Coke Company for an increase in rates, I presented testimony in regard to cost of money to the company, trends of interest rates and bond yields, the effect of billing methods upon the investment in operating expenses, and data in regard to public utility financing in recent years. In several other cases involving applications by utilities for rate increases after the enactment of the public utility tax act, I presented testimony in regard to the unemployment relief problem in Illinois.

In March, 1938, I testified before the Public Utilities Commission of Ohio as a witness on behalf of the City of Cleveland in a proceeding entitled "East Ohio Gas Company *vs.* Cleveland," which involved rates for gas service in the City of Cleveland furnished by East Ohio Gas Company. My testimony in this instance dealt with the problem of cost of money to Standard Oil Company, the parent company of East Ohio Gas Company.

During the past few years I have written certain articles in regard to public utility financing. During the years 1936 to 1938, inclusive, I prepared quarterly a review of public utility financing that was published quarterly by the Jour-

nal of Land and Public Utility Economics. I also prepared for the same journal a summary of public utility financing from 1919 to 1935. The article last mentioned dealt principally with the revision and computation of an index number of the volume of public utility financing.

I have prepared some material with respect to trends of interest rates and bond yields and have put that material into the form of an exhibit.

(At this point counsel for complainant produced a document entitled "Trends of Interest Rates and Bond Yields" with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 180.)

My exhibit has been marked Exhibit 180. Page 1 of this exhibit presents the trends of interest rates from 1923 down through the first eight months of 1939 for four different kinds of short term loans. The first kind is prime commercial paper of 4 to 6 months maturities. In the column under that heading I indicate the range during the year or month, as the case may be.

The second column shows similar ranges of rates of interest for prime bankers' acceptances for 90-day maturities.

The third column of figures represents the interest rates on 90-day stock exchange time loans.

1447 Finally, the column on the right hand side of the first page indicates the interest rates of stock exchange call loans, which, I should say, are the rates for renewals of call loans rather than new call loans.

The source of the information is indicated in a footnote at the bottom of page 1, and I believe that is true for the other pages of the exhibit. The material is obtained from the annual reports and monthly bulletins of the Board of Governors of the Federal Reserve System, which is generally recognized as an authority of source for material of this character for people working in the field of financial statistics and interest data. I would not say that they are infallible, but I would say that it is generally recognized as a very good source of financial data.

Page 2 presents the trend of interest rates charged customers by banks in the principal cities. The period is from 1919 to February, 1939. No later information is shown because this series has been discontinued. The Federal Reserve Board has announced that it expects to prepare and publish a slightly revised series in due course. The cities involved with respect to the information on page 2 are in-

dicated on page 3 of the Exhibit. Interest rates charged by banks with respect to loans made to their customers are shown here for New York City, also for 8 other northern and eastern cities, and finally for 27 southern and western cities.

Page 4 of this exhibit simply set forth the trend during the last 10 or 12 years in the discount rate of the New York and Chicago Federal Reserve Banks. This discount rate is the rate charged by the Federal Reserve Banks for certain advances or loans made to the member banks.

On page 5 of the exhibit, the trend of average yields on long term federal and municipal bonds is given for the period from 1919 until August, 1939. The first column of the percentage figures is headed "United States Government." That refers to the average yield on long term Federal bond issues.

The second column of percentage figures—incidentally I just now note that it is not indicated as percentage, but opposite the year 1919, the figure of 4.46 should be indicated as per cent. In all events, those figures there are for 15 high grade municipal bonds as computed by the Standard Statistics Company. I believe in the Standard Trade and Securities Service, Volume 3, Statistical Section, there may be a list of those 15 bonds. I have not specifically checked it up, but that is the place where they give most of their statistical series, and in most cases I know that they indicate the list of bonds, stocks, or whatever it is that they use in their various averages and indices. I would hardly think that the 15 bonds remain uniform. I believe the list is confined to the United States Treasury bonds of maturities of 8 years or more. In other words, that is about their definition of "long term." It represents the average of the yields of such United States Government bonds as happen to be outstanding, meeting those qualifications, and, as I understand it also, they compute the yield to the first call date rather than to the nominal maturity of those obligations. The average set out represents the average yield of those outstanding during the particular month. It does not relate to new issues.

1448 On page 6, the average yield on 10 high grade railroad bonds as computed by The Annalist is given for the period from 1857 to August, 1939. As indicated by the footnote there, the number of bonds in that average was reduced from 10 to 7 beginning with 1939. Otherwise I

think this page with the note given at the bottom is self explanatory. The purpose of it is to present the longer term picture of yields on what have been considered fairly high grade type of long term corporate bonds. The Annalist for a number of years made considerable use of this average in its weekly chart on economic conditions. Last spring—I do not have the exact citation at the moment—but last spring The Annalist computed a new series of high grade bond yields based upon the average yield of 10 high grade public utility bonds and indicated their intention of using that in their chart on economic conditions. Whether or not they actually followed through with their intention as to the use of that new series, I can not at the moment say, but at all events I have indicated on page 7 this new series prepared by The Annalist, namely, the average yields of 10 high grade public utility bonds. The series was of course computed back for a number of years. Specifically, I say here back through 1929, so the information on page 7 carried through from 1929 to August of 1939.

Cross-Examination Interposed by Mr. Morgan.

As to why the number of issues was reduced in the list above referred to, my own feeling is that the number of high grade bonds available probably has been reduced. In order to get a good sample which would avoid bonds selling above the call price and so on, they probably had to reduce the number. Of course there are a great many more issues of railroad bonds than seven in the year 1939. The same thing was done by Moody's Investors Service in its average ~~of the~~ yields of high grade bonds. For example, Moody's published the average yields of 10 high grade Aaa railroad bonds, 10 high grade Aaa public utility bonds, and 10 high grade Aaa industrial bonds. In the case of industrial Aaa bonds used by Moody, nominally there are supposed to be 10 bonds in that average, but they have only actually somewhere from three to five.

Direct Examination by Mr. Booth Resumed.

As I recall it, Dr. Dorau in his exhibit presents the Moody bond averages. I have examined his tables.

Finally on page 8 of this exhibit, the bond yield aver-

ages of domestic corporation bonds, as computed by the Standard Statistics Company, for public utility, railroad, and industrial bonds are presented. In the case of each of these three industrial groupings, six rating groups are shown, that is, A-1 plus, A-1, A, B-1 plus, B-1, and B rating groups are shown for each of the three major industrial classifications.

The data here are for the period 1925 to October, 1939. The information for October, 1939, is really based upon bond prices as of about September 20th. All prices are as of about the 20th of the preceding month, as given in the footnote on page 8. I cannot say definitely whether a weighted average or an arithmetic average was used here.

I think that about covers this exhibit. The general purpose of this exhibit is to show trends of interest rates and yields on both short term and long term loans of various kinds. The latest available data where used is as of the time the exhibit was prepared.

1449 You ask me to state briefly what the results are generally since the month of August in connection with the trends of bond yields as shown in the exhibit insofar as the data is now available. Broadly speaking, beginning about September 1st when the European War broke out, high grade long term bond prices declined fairly sharply for about three weeks. The bottom was reached along about the 20th, 21st or 23rd of September, when, of course, with prices falling, yields went up accordingly. The trend since about the end of the third week of September has been slightly upward, and a substantial part of the drop has since then recovered.

Speaking specifically with reference to this exhibit, I do have at this time some later information. With regard to page 1, the range of rates on commercial paper for September was from 5/8ths to 3/4, thus indicating a slight increase over August. As of about October 14th, based upon the weekly figures, there was published figures of from 5/8 to 1 per cent by the Commercial and Financial Chronicle. I think that was the week ended October 14th, if I recall correctly. The rate for prime bankers acceptances did not change in September. The same is also true of the rate of interest of 90-day time loans, and on the Stock Exchange renewals for call loans. There has been no material change up to October 14th in those figures either.

The data on page 2 of this exhibit, of course, are presented there for as late a time as is available.

The discount rates on page 4 have not since changed, to my knowledge.

On page 5, the latest data I have are for the week ended September 23rd, 1939. As I said, that was about the peak of yields of these high grade obligations, but for that week the average on United States Government long term bonds was 2.74 per cent. For the same week, the average on the 15 municipal bonds was 3.29 per cent.

With respect to page 6, the latest figure I have is a figure of 3.86 per cent for the week ended October 14, 1939. The corresponding weekly figure for the week ended September 23rd, 1939, was 4.04 per cent. That was the highest week during the intervening period. That will give you some indication of the extent of the recovery at the peaks of September.

With respect to page 7, for the week ended September 23rd, 1939, the average was 3.26 per cent, and that was the highest weekly average during the month of September and up to the middle of October. For the week ended October 14, 1939, the average was 3.10 per cent.

I have no later information with respect to the corporate bond yields shown on page 8 than what I here present. The yields set opposite the month of October, 1939, on page 8 of the exhibit are based on prices as of about the 20th of September. That is the basis upon which the computations are made up by the Standard Statistics Company. This information on page 8 is based upon a fairly large number of bonds, not just upon eight or ten or seven, but upon a rather extensive list of bonds,
1450 not a continuous list but whatever is available at that time in this classification as so rated by the Standard Statistics Company. Because it is a rather large clerical task, I presume, to prepare such information, they prepare it only on the basis of one point on a month. That is, it is not prepared daily or weekly, but it is prepared once a month on the basis of the price as of about the 20th of the preceding month.

Questions by the Examiner.

I noticed that in his testimony Dr. Dorau stated that the Standard Statistics does not make available its bond list in these different categories, and all I can say in addi-

tion thereto is this, that as indicated in the footnote here on page 8, there are a few thousands of bonds involved in this computation. It says: "Based upon all active bonds listed in the Standard Bond Investments." That is a publication that anyone taking the service can get, and so I presume to that extent you could go through that rather voluminous list and have the list of bonds. Of course they indicate at least that they do not include any bonds where the price is affected by call provisions or some other usual circumstance, probably conversion features, and so forth. They attempt to get figures that are representative yields and are not distorted by some particular momentary situation. So to that extent I just mentioned, the list probably could be available, but one from the outside might have trouble in applying their weeding-out process in order to get down to the actual list, but it is supposed to be a rather long list of bonds—several thousand in number as the starting point at least for the study.

(EXHIBIT 180 was offered and received in evidence without objection.)

At this point counsel for complainant produced a document entitled "Summaries of Recent Financing by Natural Gas Systems," with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 181.)

Direct Examination by Mr. Booth Resumed.

I prepared Exhibit 181 for the purposes of this case. This exhibit is a brief summary of financing during the years 1936, 1937, 1938 and 1939 up to about the middle of September, of ten natural gas systems, as I have called them here. The index of these companies is given at the beginning of the exhibit. That is followed by a separate statement or summary for each of the various systems.

At the outset, for each company I have given a brief summary of the character and scope of the operations of the company. That is not intended to be an exhaustive or intensive analysis of these natural gas systems, but is intended merely to show in brief summary form the general character of the system's operations, and where it operates, in order to provide the reader with general orientation, you might say, with respect to the informa-

tion. That summary, the introductory statement, is followed by a review of financing during the period in chronological order. I don't know whether any further explanation is necessary or not.

In some places through here I have attempted to indicate the cost of money under certain long term debt financing, and I have said in some places, namely, where there were sinking funds involved in the particular security, that the cost of money computation gives effect to sinking fund requirements; that is, if you put out an
1451 issue that is nominally due in 15 years, you can not figure the cost of money on it by figuring cost to that final maturity if there are intervening—you can call them—maturities—they have the effect of maturities if the intervening period contains a number of retirements due to sinking fund operations. I mean that factor must be taken into account, and I have attempted to do that wherever there are sinking funds involved or connected with a particular issue under discussion.

Questions by the Examiner.

It is just so much arithmetic. This yield basis mathematics that is used in the ordinary bond yield books is simply a matter of finding the present value of all future payments under that contract at the given rate of interest. That is, if we have a 20-year 4 per cent bond with semi-annual coupons, we know that for 20 years, every six months we are going to get $20, and at the end of that 20 years, we get $1,000—speaking now of a $1,000 value bond. If the rate of interest is 5 per cent, that is, if the yield is 5 per cent, you merely find the present value of all of those future payments at a 5 per cent rate of interest. The result is today's prices on such a bond in order to yield to maturity exactly 5 per cent. And the same principle could be applied to any series of future payments.

If I understand you correctly, it would not complicate my estimates here if I had an authorization to the company to reissue bonds under certain conditions under a sinking fund provision; but I don't know that that was involved here. I might say that these sinking fund provisions previously provided that year by year up to maturity a certain number of bonds were to be retired.

Frequently these bonds were retired by calling them at the call price provided for in the indenture for sinking fund redemption. Frequently there is a slight premium, and I have given effect to that in my computations. Of course as a matter of fact, at some future date one of these companies might be able to buy up enough bonds on the open market to satisfy its sinking fund in certain years, and obtain them at a lower price than the call price. If they did that, then the actual cost might work out something different from what I have shown here, but it would be less because of obtaining them at a less price. In other words, I think probably it can be taken as the maximum cost figures.

Cross-Examination Interposed by Mr. Morgan.

Exhibit 181 is my interpretation of the facts as I have gathered them from prospectuses issued in connection with public financing and from annual reports to stockholders or releases of the Securities and Exchange Commission, and in some cases from Poor's or Moody's Manuals. I might have gotten information from the Commercial and Financial Chronicle, and in one or two instances I think I obtained information directly from the underwriters. I have made no independent check of the accuracy of the information. I have my working papers that I used in connection with the exhibit. They will be available to someone representing the companies in the event they want to go over them with me.

(EXHIBIT 181 was offered and received in evidence without objection.)

1452 *Direct Examination by Mr. Booth Resumed.*

You have asked me to assume that an investment is to be amortized or depreciated over a 16-year period; that 8 per cent per annum is to be paid on the investment, and that this 8 per cent includes 5.25 per cent for risk premium. You then ask me, if the annual amortization allowance and the risk premium payments were accumulated together, how many years would be required for these two funds to aggregate 100 per cent of the original investment. These two items, that is, the risk premium and the amortization, would aggregate 100 per

cent of the original investment in 8½ to 9 years. More specifically, the accumulation would be something less than 100 per cent in 8½ years and something more than 100 per cent in 9 years, but the precise amount would fall between those two extremes. My answer is based upon straight line amortization. I did not allow for interest on the funds accruing during the 8½ to 9 years.

Since the period considered is 16 years, 1/16, or 6.25 per cent, of the investment would constitute the annual straight line amortization. A risk premium of 5.25 per cent added to this amortization gives a total of 11.50 per cent of the investment as the annual addition to the accumulation. Obviously, if 11.5 per cent accrues each year, then 100 per cent divided by 11.5 per cent gives the number of years required to accrue 100 per cent. The result is 8.7 years, or, as I have already said, between 8½ and 9 years.

If the annual amortization were computed on a sinking fund basis instead of a straight line basis, the answer would depend somewhat on the rate of interest used to fix the amortization annuity and the rate of interest used to compound the aggregate fund. At 6 per cent interest, somewhere between 8 and 9 years would be required for the amortization and risk premium funds to accumulate to 100 per cent of the investment if the interest were compounded annually. If interest were compounded semi-annually, 8½ to 9 years would be required. Whether the interest rate used be 1 per cent, 2 per cent, 4 per cent or 8 per cent, the period would be between 8 and 9 years, that is, in each case upon the basis of annually compounding interest. On the basis of semi-annually compounding interest in the period, between 8½ and 9 years for 1 per cent, 2 per cent, and 4 per cent rates of interest, but it would be 8 to 8½ years on the basis of 8 per cent rate of interest and semi-annual compounding.

In getting these results the first step is to determine the percentage of the investment representing the annual or semi-annual amount of amortization required to accumulate at the chosen rate of interest to 100 per cent of the investment in 16 years. This percentage is readily determined by reference to standard annuity tables. The next step is to add the percentage of risk premium, namely 5.25 per cent on an annual basis or 2.625 per cent on a semi-annual basis, to the percentage found in the

first step in order to arrive at the total percentage accruing annually or semi-annually. The final step is to determine in how many years the resulting total percentage of the investment would accumulate to 100 per cent of the investment when set aside each year or each six months at compound interest at the rate being used in the computation. Reference to standard annuity tables gives an approximate answer, but interpolation of values found in such tables is necessary for a precise answer.

1453 At 6 per cent, the amortization annuity would be 3.90 per cent of the investment for a 16-year period, upon the basis of annual compounding. Adding 5.25 per cent risk premium gives a total annual accumulation of 9.15 per cent. Annuity tables reveal that at 6 per cent, an annuity of 10.10 per cent of an investment will accumulate to 100 per cent in eight years, and that 8.70 per cent of an investment will accrue to 100 per cent in nine years. Since my figure of 9.15 per cent that I was talking about falls between 8.70 per cent and 10.10 per cent, the answer that I seek falls somewhere between eight and nine years. If one were to make a straight line interpolation between those two sums, the result is about 8.7 years.

Cross-Examination Interposed by Mr. Morgan.

You ask me whether I am taking a part of the rate of return and adding it to the amortization allowance. My answer is yes and no. What I am taking is the amortization allowance as computed by the various straight line and sinking fund methods that I have reviewed and adding to the percentage, that is 5.25 on the annual basis or 2.625 per cent on the semi-annual basis, and that latter sum—the percentage—is given to me as the portion of the over-all rate of return of 8 per cent representing risk premium, in other words, and carrying along together two series, namely the amortization on the one hand and the risk premium on the other. I put them together for simplification of the arithmetic, that is all. Yes, I am taking 5.25 of the 8 per cent assumed as the rate of return and adding that to the amount allowed there as a reserve for amortization in arriving at a return of 100 per cent of the capital.

You ask me whether or not that cuts the return down to 2.75 per cent automatically. I think what I am doing is

merely some arithmetic based upon certain assumptions that were contained in the question given to me at the start, namely, that if we took annual amortization as a sum of money, and if we took 5.25 per cent as another sum, and if we added those two funds together, we would determine how long it would take the two working together to accumulate 100 per cent of the original investment. I did not allow interest on either fund in the first example by straight line amortization. On the next example, where I used the sinking fund method of determining the amount of amortization, the interest on both funds was compounded at the same rate of interest used in obtaining the amortization annuity in the first place. There is no significant difference in the number of years. I just bring in the arithmetic. I am not testifying to the propriety of doing it in that way. I am doing the arithmetic.

Direct Examination by Mr. Booth Resumed.

You ask me to assume the rate of return to be 6 per cent and to assume that the annual risk premium included therein is only 3.25 per cent instead of 5.25 per cent. With 3.25 per cent annual risk premium and with 16 years amortization, you ask me how many years it would require to accumulate 100 per cent of the original investment. For a 16-year period and a 3.25 per cent risk premium it would take 10.53 years to recover 100 per cent of an investment through the accumulation of the amortization and risk premium funds when the amortization allowance is determined on a straight line basis and when no interest is allowed upon either of the funds. If the depreciation or amortization allowance is determined on a sinking fund basis and if both funds are accumulated at the corresponding rate of interest the results would be as follows:

1454 At a rate of interest of 1 per cent, it would require 10 to 11 years to accumulate 100 per cent of the investment.

On the straight line basis of 3.25 for risk premium, the exact period of accumulation is 10.53 years. If a 1 per cent rate of interest be used, the period is somewhere between 10 and 11 years. As the rate of interest is increased, the length of time decreases, but it decreases very slowly, so that for rates of interest of 2 per cent, 4 per cent, 6 per cent, and 8 per cent, the period of time falls between 10 and

11 years. This is all based on annually compounding interest. If the interest be compounded semi-annually, rates of 1 per cent and 2 per cent would require between 10½ and 11 years to accrue the fund, and for interest rates of 4 per cent, 6 per cent, and 8 per cent, a period of between 10 and 10½ years would be required.

Yes, I am familiar with the procedure sometimes used in rate making whereby the rate of return is applied to an undepreciated rate base and the annual depreciation expense is determined on a sinking fund basis. As I understand that method of procedure, when the annual allowance for depreciation expense or amortization is determined on a sinking fund basis, the rate of return is applied to an undepreciated rate base in order to ascertain the amount of the return. That method of determining the annual depreciation expense or amortization allowance consists simply in finding that sum, called an annuity, that would accrue to the full amount to be depreciated or amortized if the annuity were set aside in a fund and compounded at the rate of interest used to determine the required amount of the annuity. If the return was allowed on an undepreciated rate base, but the annual depreciation expense was determined on a straight line basis, as regards any given rate base, the rate of return on the depreciated rate base would increase year by year. Yes, if the rate of return were originally fixed at 6 per cent, the rate of return on the depreciated rate base would rise progressively above 6 per cent in subsequent years.

If the annual depreciation expense were determined on a sinking fund basis and by use of an interest rate of 2 per cent, and if the rates were fixed so as to provide a rate of return of 8 per cent on the undepreciated rate base, the rate of return on the depreciated base would also rise year by year but less rapidly than in the case of the previous example.

If the annual depreciation or amortization allowance were determined by the use of a 6 per cent rate of interest and a rate of return of 6 per cent were allowed on the undepreciated rate base, the rate of return on the depreciated rate base would remain at 6 per cent in subsequent years if the annual accruals at 6 per cent on the amortization reserve were deducted from the amount of return.

Yes, it can be demonstrated as a general principle that when the annual depreciation or amortization expense is determined by use of a rate of interest equal to the rate of

return, the rate of return on the depreciated rate base will remain at the same percentage throughout a period when the interest accumulations on the amortization reserve are deducted from the amount of the return. In other words, the procedure whereby the rate of return is related to an undepreciated rate base when the depreciation or amortization expense is fixed on a sinking fund basis, in reality represents a return at a given rate on the depreciated rate base plus the interest accrual required to accumulate the depreciation annuity to 100 per cent of the amount
1455 being depreciated. That is true so long as the interest rate used to determine the depreciation annuity is the same percentage as the rate of return.

Cross-Examination Interposed by Mr. Morgan.

By an undepreciated rate base I mean the total investment without deduction of anything for depreciation. In order to deal with compound interest problems you have to determine on a sum of money. Perhaps the use of the term "rate base" or something like that is unfortunate. I don't care what you call it particularly, but I am going to apply this arithmetic to a sum of money because we have to deal in those terms. You cannot shift around and use several different kinds of figure and not be consistent throughout in your computations.

While I am on the subject, I might also explain that I have talked and probably will talk more about the earnings on the amortization reserve. There again we may have word trouble if you think of a thing in the ordinary accounting sense. In the accounting sense "reserve" is merely a bookkeeping item and could not earn money, but I don't know just how to avoid those things. It may be that the English language is a little bit deficient in order to get around it. I figure depreciation or amortization or whatever you want to call it. I start out with a total amount without deduction, and when I speak of an undepreciated rate base, I mean the same original total that I started with; and when I speak of a depreciated rate base, I am talking about the original sum that I started with less accruals obtained by the method of amortization or depreciation that I applied.

(At this point counsel for complainant produced a document entitled "Computations in Regard to the Sinking

Fund Method of Amortization and Rate of Return on Net Investment," with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 182.)

Direct Examination by Mr. Booth Resumed.

There are three tables in Exhibit 182. The computations in Table I as well as in Tables II and III are based upon a total investment of $1,000,000 and a period of 10 years. In Table I the annual allowance for amortization, as shown in column B, is established on a straight line basis, therefore representing $100,000 a year in order to accumulate a reserve equal to the total investment of $1,000,000 at the end of the 10 years. The accumulation of the reserve by means of the annual allowance of $100,000 is given in columns C and D. The reserve at the first of each year is shown in column C and the reserve at the end of each year is shown in column D. In columns E and F the amount of the total investment less the amount of the reserve is given. Here again the data are shown both as of the first of each year and as of the end of each year. In column G the sum of $80,000 is given for each of the 10 years, and this represents 8 per cent on the total investment of $1,000,000. In column H the rate of return on the net investment, that is, the investment less the reserve, is shown for each of the years. This is obtained by dividing the $80,000 shown for each year in column G by the amount of the investment less the reserve as of the first of each year, as shown in column E. Obviously the rate of return on the net investment is 8 per cent the first year because the reserve was zero as of the first of the first year. As the net investment decreases the rate of return obviously rises because the amount of the return has been constant throughout the period.

1456

The amounts in column I represent 8 per cent of the investment less reserve, as shown in column E. The amounts in column J merely represent the excess of 8 per cent on the total investment over 8 per cent on the investment less the reserve. These amounts are obtained by subtracting the amounts in column I from the amounts in column G.

In Table II the annual allowance for amortization, as shown in column B, is determined on a 2 per cent sinking fund basis. This annual allowance amounts to $91,327. In other words, that sum set aside at the end of each year

with interest at 2 per cent compounded annually would amount to $1,000,000 at the end of 10 years. The annual interest accrual on the amortization reserve required to accumulate the total investment is given in column C. Column D merely represents the total of columns B and C and is therefore the total annual addition to the reserve. The accumulation of the reserve at the first of each year and at the end of each year is set forth in columns E and F. The amount of the investment less the reserve at the beginning and end of each year is given in columns G and H. In column I the sum of $80,000 is shown for each year as representing 8 per cent on the total investment. In column J the amount of the annual interest accruals on the reserve, as shown in column C, are deducted from the amount representing 8 per cent on the total investment, as shown in column I. In column K the rate of return on the net investment, as shown in column G, is computed by dividing column J by column G. In other words, these percentages in column K represent 8 per cent on the total investment less the interest accruals on the amortization reserve divided by the investment less the reserve. Since there is no reserve at the beginning of the first year the rate of return is 8 per cent for that year. As the reserve accumulates, in other words, as the net investment decreases, the rate of return increases progressively to 56.97 per cent of the net investment in the last year.

My column K on page 2 is similar to column H on page 1. It is supposed to represent the same thing applied to different conditions portrayed on two different pages.

In Table III, the annual allowance for amortization has been computed on an 8 per cent sinking fund basis, or in other words, at the same percentage as the rate applied to the total investment, as set forth in column I. Otherwise Table III is prepared in the same method as Table II. As shown in column B the annuity required to accumulate to $1,000,000 in the 10 years at 8 per cent is $69,029. The necessary interest accumulations at 8 per cent are given in column C. When these interest accumulations are deducted from the 8 per cent on the total investment, as shown in column I, the amounts given in column J are obtained. It may then be seen that these net amounts in column J result in a rate of return of 8 per cent in each year on the net investment, as shown in column G. In other words, the 8 per cent on the total investment, as shown in column I,

represents 8 per cent on the net investment shown in column G plus 8 per cent interest accruals, as shown in column G, on the amortization reserve, as shown in column E.

1457 *Cross-Examination Interposed by Mr. Morgan.*

You ask me in which of the cases in which I have testified heretofore I presented figures of this character dealing with the subject of amortization. With respect to Exhibit 182 I have never seen anywhere this arithmetic or this analysis. I have never used it before. It is something that I came upon a few weeks ago in connection with an analysis or study of this sinking fund depreciation method in connection with the undepreciated rate base. I just worked it up in my own mind. It took a number of days and nights of scratching to find out what it was all about; and this is the answer that I have come to, and, as I asked myself, what is involved in the theory to make it a usable and workable method of fixing rates? After considerable use of scratch paper and so on, I finally discovered what was involved in this principle.

No, I don't think the whole study is based on the assumption that there should be no earning on anything except rate base less the reserve. I think in the last analysis it goes even behind that. I think you have to start out with this principle, that any rate making principle to be fair in its application should be such as to allow the recoupment through the rates charged of all the capital consumed in the enterprise, and it should also allow for rate of return on the capital not recouped or not paid back by the rate payers.

You ask whether I am treating that part of the capital investment which has been passed to reserve as having been recouped. When you say "passed to reserve," I would say that part that has been returned through rates by the rate payers and allowed as one of the costs of the business.

(EXHIBIT 182 for identification, offered and received in evidence without objection.)

Direct Examination by Mr. Booth Resumed.

During the past few years in connection with my work before the Illinois Commerce Commission and prior thereto, I have given some consideration to what is known as

the factors or influences with respect to the money market. I have given some attention to that problem in connection with studies I have made for the purposes of this case. I believe the outstanding factor or influence has been the large volume of idle funds that has accumulated in recent years. These idle funds are reflected in the banking system in two forms, namely, deposits in banks and excess reserves of the banks themselves. I have prepared an exhibit in connection with this problem.

(At this point counsel for complainant requested that the document just referred to by the witness, entitled "Money Market Factors," be marked for identification. At the direction of the Examiner the document was marked Exhibit 183.)

Table I of this exhibit shows the number of banks and the amount of bank deposits in the United States as of December 31, 1923, and as of the same date for all subsequent years up to and including 1938, and also as of June 30, 1939. The first two columns of figures are for all banks. It shows the number of all banks and the amount of their deposits.

The second two columns of figures are for member banks of the Federal Reserve System. The remaining two columns are for non-member banks.

I might explain briefly that when I refer to member banks, I refer to banks that are members of the Fed-
1458 eral Reserve system. All National banks are of course required by law to be members of the System. State banks and private banks and so forth can become members if they can meet certain conditions prescribed by law and by the Board of Governors of the Federal Reserve system. I believe that gives the general scope of the information shown there.

Total bank deposits rose from $42,163 millions at the end of 1923 to a peak of $56,766 millions at the end of 1928. The decline that followed carried the total down to $38,505 millions at the end of 1933. Since 1933 the volume of deposits has risen steadily to reach a total of $55,988 millions as of June 30, 1939.

Bank deposits plus money in circulation constitute the most liquid form of capital. From 1921 to 1929, inclusive, based upon data as of December 31 each year, the amount of money in circulation ranged between $4,403 millions to $4,817 millions. Since 1929 the trend has been generally

upward. As of December 31, 1938, the amount of money in circulation was $6,856 millions. On August 31, 1939, the total was $7,171 millions. I do not show in this exhibit the amount of money in circulation.

I would say that this large volume of liquid resources influences the money market in two ways or from two different points of view. Large balances held by institutional and other investors exert pressure on the money market from the standpoint of the supply of money available for investment. In other words, these resources are ready to flow into new securities and investments whenever the opportunity is afforded. Large balances held by commercial and industrial firms is an important factor in reducing demands for capital from outside sources. That is, when commerce and industry have large liquid resources there is less need to rely upon banks and investors for funds with which to expand operations. This situation helps to account for the reduced demand in recent years for commercial loans and new capital financing.

In 1929, total loans by all member banks exceeded 26 billions of dollars. The total declined steadily to a figure of a little less than $12 billions in 1935. Subsequent increases carried the total to $13,141 millions as of June 30, 1939,—about half of the 1929 total.

Table II is nothing more than a breakdown of the amount of deposits shown for member banks in Table I. On Table II the deposits of member banks are broken down into demand deposits and time deposits. The amount of each class of deposits is shown, together with the percentage relationship that each class bears to the total. Technically, you might observe that in recent years the demand deposits have come to occupy a little greater percentage of the total compared with what was true back in the early 30's—of 1930, 1931, and 1932.

A demand deposit is a deposit that is payable on demand. Time deposits are savings deposits which technically at least can be withdrawn only upon certain notice to the bank. Actually, of course, most banks will let you take out time deposits on demand, but they can if they want enforce a 30 or 60-day notice rule or something to that effect.

Another important item to be considered in relation to the volume of bank deposits is the rate of turnover of bank deposits. Table III presents the average annual rate of velocity or turnover of demand deposits in recent

1459 years for New York City and for 100 leading cities outside of New York City. I might explain that by velocity or turnover I am referring to the relation between the amount of checks drawn upon an account to the average amount of the account. That is, if the deposit or the account averages $1,000, we will say, and if checks are drawn in the amount of $12,000 during the year, the turnover would be 12 times. This turnover is expressed in the "Times" in Table III. Ordinarily speaking, whatever the amount of the deposits in the New York City banks were for the year 1939, there were 23.2 times that turnover of those deposits during the year. It is the ratio of, you might say, bank debits, which are charges for checks drawn against individual accounts, to the average balances, namely deposits.

The bank reserves to which I am referring are the deposits that member banks have in the Federal Reserve banks. That is, the member banks keep their extra resources on deposit with the Federal Reserve banks. Part of these reserves are known as "required reserves." Under the Federal Reserve Act, member banks must at all times keep on deposit with the Federal Reserve a certain percentage of the deposits placed with them by their depositors. Any excess on deposit with the Federal Reserve over and above these required reserves is known as excess reserves.

Turning to Table V, that is merely a schedule showing for different periods the percentages of deposits required to be kept on deposit with the Federal Reserve bank by the member banks. On Table V, the heading on the left which reads as follows, "On Net Demand Deposits," there are three headings, namely, "Central Reserve, City," "Reserve City," and "Country." I ought to explain that the percentages shown opposite that "Central Reserve, City" refer to the percentage of deposits required as reserves from banks located in what are known as central reserve cities. Presently those are merely Chicago and New York. The percentages opposite the heading "Reserve City" refer to the percentages of reserves required in the case of banks in the reserve cities. Reserve cities are designated by the Board of Governors of the Federal Reserve system and include some of the other large cities in the country, I think principally the 10 other cities where the other reserve banks are located. All other banks are known as country banks;

that does not mean small town banks necessarily, but that would include banks in some pretty good sized cities.

Finally, of course, the percentage required of time deposits is shown. That is the same for all classes of banks there.

Table IV, which you asked me to discuss, shows the total reserves of member banks on deposit with the Federal Reserve system and that total is broken down into required and excess reserves. You will observe that the excess reserves are rather nominal until 1932. So that since 1932 or beginning in 1932, the total reserves of the member banks have risen quite rapidly and the excessive reserves have also risen quite rapidly.

I have inserted in this table references to changes in the percentages of reserves required in order to help explain some of the rather marked changes up or down in the excess reserves.

Questions by the Examiner.

The excess reserve is placed by the member banks with the central bank. These are pretty much idle funds we are talking about here. The central banks—the Fed-
1460 eral Reserve banks—might be called bankers' banks.

They stand in the same relation to the member banks that the member bank stands in with its depositors. The member banks do not keep their funds on hand; they do not keep on hand these billions of dollars of cash. The Federal Reserve is a better depository for that purpose than they are themselves, and if all of the member banks, for example, had 5 billion dollars of total reserves with the Federal Reserve system, part of that 5 billion dollars would be required reserves, that is, under the law these banks are required to keep there a certain percentage of their deposits, just as a safeguard for the depositors, and if the Federal Reserve were to increase their percentage, that would automatically decrease the amount of the excess.

I have put references in here to the changes in the percentage requirements in order to explain some of the larger changes up or down in the excess reserves as shown in the extreme right hand column of Table IV.

Direct Examination by Mr. Booth Resumed.

As I just said, these excess reserves represent the idle funds of the member banks. Banks are presumably in business to make a profit, so the more idle funds they have, the greater the pressure to put those funds to work and earn a return on that; that is, the banks will do whatever they reasonably and legally can to put their money to work and make a profit. Furthermore, I might point out that this amount of excess reserves shown here in Table IV does not tell the whole story until you consider the possibilities of credit expansion connected with the amount of reserves; that is, every dollar of excess reserves represents several dollars of potential loans and investments. That is, a bank may use its excess reserves to make loans to a customer. That results in a deposit to the customer's credit given by the bank, but the bank is required to keep only a percentage of this deposit at the Federal Reserve, but an excess is still available for further loans and investments.

The principle factor accounting for the growth in member bank reserves in recent years has been the increase in our gold stock. Other factors affecting reserves are the operations of the Federal Reserve system and of the United States Treasury. You ask how the growth in the gold stock has been a factor. I might say before going into that answer, that the monetary gold stock of the United States from 1933 to date is given in Table VI. That gold coming into the banking system here from abroad or from newly mined sources has resulted in deposits in the banking system to the credit of whoever brought in the gold; but since only a percentage of these deposits must be kept as required reserves, the balance has operated to become excess reserves. Reserves are, after all, hard cash with the Federal Reserve banks.

The Federal Reserve system, pursuant to policy set by the Board of Governors, can effect changes in bank deposits and member bank reserves by controlling the discount rate, by open market operations and by changes in reserve requirements.

The discount rate is the rate of interest Federal Reserve banks charge member banks for loans made to them. Since such a loan is a deposit in a Federal Reserve bank to the credit of the member bank, such a loan adds to the bank's

reserves, which are merely deposits with a Federal
1461 Reserve bank. By increasing or decreasing the discount rate, the Federal Reserve can, within limits, discourage or encourage member banks to borrow; in other words, to increase reserves. This control is, of course, limited because member banks would not borrow even at a very low rate if it were not profitable to do so. As a matter of fact, member bank borrowing is presently very nominal in relation to the amount of 1928 and 1929. Specifically, borrowings by all member banks were only $5,000,000 on June 30, 1939, as compared with $1,162 millions on December 31, 1928. In view of the excess funds held by the member banks and the consequent absence of need for borrowing, the discount rate presently is not an important or effective factor in the growth of member bank reserves. Nevertheless, since the member banks now hold nearly $11 billions of U. S. securities, they could borrow on them at present very low interest rates by discounting them or pledging them with the Federal Reserve System, and thus obtain a very large volume of additional money if commerce and industry were to place any such demand for funds upon the banks.

By buying or selling securities in the open market, the Federal Reserve can increase or decrease member bank balances. That is, when the Federal Reserve buys, its funds get into the banks and increase deposits and reserves. When the Federal Reserve sells, it of course takes funds out of the banks, thus decreasing deposits and reserves. The Federal Reserve banks have contributed to easy money conditions by increasing their holdings of Government securities from $511 millions on December 31, 1929, to $2,826 millions as of September 20, 1939.

When reserve requirements are raised, the amount of excess reserves is automatically reduced, thereby reducing the amount of funds available for loans and investments by the member banks. By reducing reserve requirements, the opposite result can be produced, of course. The extent to which reserve requirements can be raised or lowered is limited by provision in the Federal Reserve Act. Even under maximum requirements now possible, there would still be a huge volume of excess reserves, however. I might point out that the maximum legal requirements are the percentages shown by Table V to have been in effect from May 1, 1937 to April 15, 1938, and these are

the maximum percentages of required reserves under the Federal Reserve Act.

That brings us to Table VII. Table VII shows the gross debt of the United States by months from January 1933 to July 1939. The table also shows the investment of member banks and of the Federal Reserve banks in the direct obligations of the United States at various dates over the past few years. The holdings of member banks rose from $6,540 millions at December 31, 1932, to $10,946 millions at June 30, 1939. The holdings of the Federal Reserve banks rose from $1,768 millions at January 31, 1933, to $2,426 millions at August 31, 1939. When the Federal Reserve banks acquire U. S. securities, it results in the ultimate expansion of deposits and reserves of the banks. What it really amounts to is a shift of funds from the Federal Reserve—its own funds—to the banks. Eventually it gets back in the Federal Reserve in the form of deposits by member banks in the Federal Reserve. When the member banks acquire U. S. securities, no immediate expansion in deposits and reserves results unless the member banks borrow in order to buy securities. That is, if they were to borrow from the Federal Reserve in order to buy United States securities, that would create additional deposits in the banking system and additional reserves at the Federal Reserve bank, but when they use their own
1462 funds, of course there is no such increase in deposits and reserves. I mentioned a while ago that member banks have practically no debt owing to the Federal Reserve at this time, so the process whereby a member bank borrows in order to buy United States securities has actually not been operative. It is potential, but it has not been operative as a matter of fact; but these roughly $11,000 million dollars in United States securities held by the member banks represent potential means whereby the banks can obtain funds if they find a need for them.

Speaking of the United States Treasury operations further, the Treasury in recent years has made large purchases of silver, and that adds to the deposits and reserves just the same as the increase in the gold stock. The reason is that the Treasury has issued silver certificates to finance the purchase of the silver. Silver certificates, of course, getting into the banking system as cash add to deposits, and in turn add to the cash reserves of the Federal Reserve System.

There are certain potential means of making still fur-

ther additions to the volume of excess reserves. If the Treasury were to disburse funds representing gold held in the Stabilization Fund, and if it were to reduce its large balances at the Federal Reserve banks or if it were to issue currency against its holdings of silver bullion, deposits and reserves of the banking system would be increased substantially. Furthermore, the Treasury has authority to issue up to $3,000 millions of United States notes, that is, currency. On the other hand, the volume of reserves could be reduced by the Treasury through sale of securities to increase its balances at the Federal Reserve bank or by acquiring additional cash. The Federal Reserve could also effect some reduction in excess reserves by again raising reserve requirements to the maximum permitted by the law.

Cross-Examination Interposed by Mr. Morgan.

You ask if these affirmative statements that I have been making about Exhibit 183 are contained in the sources and merely abstracted or paraphrased by me or whether they represent my own interpretation of what the figures taken from those authorities show. I would say partly both. I think if you will read the annual reports of the Federal Reserve system, that is the Board of Governors of the Federal Reserve system, for recent years, you will find that most of these things are discussed. That is, the Board of Governors is required by law to set forth in its report to Congress its actions and its reasons therefore; that is, it must state its policies in black and white. There can be no secret about it. You ask if these statements I make as to why this or how that might influence the banking situation are my own interpretations. Yes, I believe them to be true. I do not want to take any credit for being original in this. Other people have said the same thing, and you can find this view expressed probably in a number of places if you make a search for it. I am willing to take the responsibility for any opinions that I might have expressed.

(At this point EXHIBIT 183 was offered and received in evidence without objection.

At this point counsel for complainant produced a document described as a copy of Exhibit 20 introduced before the Illinois Commerce Commission in Docket No. 21170, which counsel stated was another exhibit submitted by Mr.

Ralph W. Gallagher in that proceeding, with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 184.)

1463 *Direct Examination by Mr. Booth Resumed.*

I have examined Exhibit 184 for identification. It shows the basis of computing the estimated amortization charges. Most of the property was amortized, or the amortization requirements were computed, upon the basis of a 15-year period and a rate of interest of 6 per cent. The gasoline plant property at Fritch, Texas, was set up upon a 10-year basis, but still at 6 per cent. It also provided that in the case of gas wells drilled in say the tenth year of the 15-year period, those wells would be amortized over the remaining five, but in general a 15-year period was used and throughout a 6 per cent rate of interest was used. The method of amortization provided for was on a sinking fund basis.

(At the request of counsel for complainant and at the direction of the Examiner, the reporter copied into the record the material embodied on pages 13, 14, 15, and 16 of Exhibit 184, as follows:

Page 13.

Amortization of Cost of Gas Leases and Wells.

A Gas leases were amortized at the rate of 4.3% per year which is on the basis of a 15-year sinking fund with interest compounded annually at 6%. The investment involved is $15,429,768 and the annual expense is $665,000.

B Gas wells were all amortized by the end of the 15-year period. Wells drilled or purchased in the first year were amortized in 15 years on the sinking fund basis. Wells drilled in the 10th year were amortized in 5 years. Thus this charge varies from year to year but averages $472,000.

Page 14

Amortization of Investment in Gathering Lines.

Total investment amortized during the 15-year period of operation. The amount spent the first year was amortized in 15 years, on the sinking fund method compounding the interest annually at 6%. The amount spent in the 5th year was amortized in 10 years, etc. The investment changes from $4,589,000 in the first year to $7,109,000 in the fifteenth.

Page 15

Amortization of Investment in Gasoline Plant.

This plant was amortized in 10 years, assuming a net salvage value at the end of that time of 10%. Thus the amortization rate on this plant was computed at 7.6% per year on 90% of the investment. This gives $51,000 per year.

Page 16

Amortization of Main Line and Compressor Stations.

This was computed on a fifteen year sinking fund basis compounding the interest annually at 6%. This gives an amortization rate of 4.3% per year which is applicable to $49,608,123, resulting in an annual figure of $2,140,000.

Above investment includes pipeline, telephone, compressor stations, interest during construction and overhead.)

1464 CHARLES W. KNAPP, JR., a witness for the Federal Power Commission, testified:

(November 6, 1939)

Direct Examination by Mr. Slaff.

My name is Charles W. Knapp, Jr. I am employed by the Federal Power Commission in the capacity of Principal Examiner of Accounts in the Division of Finance, which is a division of the Bureau of Accounts, Finance and Rates. I have been with the Federal Power Commission since December, 1938.

I attended the University of Vermont and graduated with the Bachelor of Arts degree. I am a certified public accountant of the State of New York, having obtained my certificate in 1934. I was a member of Phi Beta Kappa. I am also a member of the New York State Society of Certified Public Accountants. As to employment previous, going backward in time, prior to my commencement with the Federal Power Commission, during 1938 I was engaged in private practice in and about New York City, having a construction, manufacturing and publishing clientele. During 1937 and 1938, or a very small part of 1938, I was employed by Allen R. Smart & Company, certified public accountants, in their New York office as senior accountant, and was in charge of audits of United Aircraft Corporation and subsidiaries for the year 1937.

Prior to joining Allen R. Smart & Company, I was employed by the Federal Communications Commission as an accounting expert on its investigation of the American Telephone & Telegraph Company, and while with that Commission, I was engaged on an analysis of the principles and methods of consolidation employed in the preparation of the Bell system financial statements, in analysis and reports of the history of holding company investments in the Associated Telephone Companies, in analysis and reports of financial history of the Western Electric Company, as well as other studies and reports. The period of employment with that Commission was during the years 1935 to approximately the early part of the summer of 1937.

Prior to my employment by the Federal Communications Commission, I was employed by Arthur Anderson & Company, accountants and auditors at their New York office as senior accountant, in charge of the audits of the eastern operating subsidiaries of one of the largest, if not the largest, independent systems of telephone utility companies in the country, as well as of holding and subholding company audits and consolidation work of that system.

I was also engaged during my period with Arthur Anderson & Company, which was the period 1932 to 1935, on audits of electric, gas and water utilities.

Prior to my employment by Arthur Anderson & Company, I was for several years employed by public accounting firms, including approximately a year with Peat, Marwick, Mitchell & Company in 1925 and 1926, as well as having held positions as accountant in private industrial and commercial companies.

1465 In connection with this proceeding certain exhibits have been prepared dealing with various factors involved in arriving at a determination of a proper rate of return. These exhibits were prepared at the direction and under the general supervision of Mr. Charles W. Smith, Chief of the Bureau of Accounts, Finance and Rates of the Federal Power Commission. They have been prepared in two parts, which have been designated Part 1 and Part 2. I am going to testify to so-called Part 1, and Mr. Smith is going to testify with respect to so-called Part 2, according to my understanding.

Briefly, Part 1 contains data on general interest rates

and yields, general economic conditions, comparative risks of public utilities and other forms of enterprise, and economic conditions in and adjacent to the Chicago industrial area.

Part 2 contains data relating specifically to the natural gas industry and is comprised of general statistics pertaining to the natural gas industry as compiled by the United States Bureau of Mines and the American Gas Association, and information concerning the issuance, ownership, prices, and yields of securities of natural gas companies.

(At this point counsel for the Commission handed the reporter a document entitled "Rate of Return Study, Part I" with the request that it be marked as an exhibit. At the direction of the Examiner the document was marked Exhibit 185.)

In the very first part of Exhibit No. 185 will be found a table of contents from which it will be seen that the data contained in Part I consists of exhibits ranged in several groups or sections. These sections in the order of their appearance, as indicated by the table of contents, are as follows:

1. "General Interest Rates and Yields," which relates generally to yields on investments and commercial paper.

2. "Utility Interest Rates and Yields," pertaining to yields on utility securities and containing information on recent financing by public utilities in general and, in addition, data compiled separately covering new financing by electric utilities during the period from 1935 through August, 1939.

No. 3 is the section "Economic Conditions," which gives a general picture of economic conditions both currently and for the period since 1920 as indicated by indexes of wholesale prices, general business activity and, for the period since 1929, national income payments.

The fourth section is entitled "Comparative Risk" and gives an indication of the relative risks of public utilities as compared with other forms of enterprise.

By reference to the table of contents it will be noted that the various sections which have just been described contain exhibits which consist of charts and schedules. The schedules support the charts, or, in other words, contain the detailed information which is reproduced on the charts for the purpose of facilitating the giving of testi-

mony. For example, where a schedule number ap-
1466 pears on the same line as a chart number in the table of contents, the schedule and chart should be read in conjunction with one another. In certain instances a schedule number appears without a related chart number, in which case the schedule stands by itself.

The first section of this exhibit has three charts and three schedules and deals with general interest rates and yields. As a preliminary to Chart 1 and Schedule 1, pages 1 to 11, inclusive, I might say that Moody's Investors Service publishes a considerable amount of financial data, and its publications are accepted and relied upon generally for purposes such as are now being considered. Chart 1 shows the bond yield averages of 120 domestic corporations according to ratings given by Moody's publications. There are not always 120 corporations in the list, and there are not that number of corporations at this time, principally because of the difficulty of finding industrial bonds of the higher ratings. By reference to page 8 of Schedule 1, it will be observed that the industrial group of Aaa bonds consists of only four issues or issues of four companies. For Aa bonds there are only the bonds of three industrial companies. Page 10 shows that for Moody's rating of A there are only 8 industrial bonds, whereas for Moody's rating of Baa, shown on page 11, the list contains ten bonds. With respect to public utilities, I believe there are 10 bonds in each one of the groups.

Chart 1 shows the range of bond yield averages since 1920. The composite average yield for all bonds included in the data, as will be noted, had reached by the end of 1936 the lowest level recorded since 1920, namely, 3.67 per cent. These percentages, incidentally, may be found in the schedule immediately following the chart. After rising during 1937 and the early part of 1938 to 4.50 per cent in April, 1938, a decline took place which has carried the composite average through August, 1939, down to about the 1936 level. It is down as of August, 1939, to where it was in January, 1937, at about 3.67 per cent. The composite line is the one that has the tag, "120 domestic corporations," which is written out over the years '34, '35, and '36. The dotted line is the 30 domestic corporations rating A.

Now, to continue, since Chart 1 shows the individual rating group averages from which the composite average

is derived, it can be seen that the decline since April, 1938, has brought the average yields for bonds of Aaa and Aa rating considerably below the 1936 level, while A bonds, that is bonds of A rating, remained slightly above the 1936 level. The low point in 1936 as compared with the yield shown for August, 1939, is as follows: Aaa bonds, 1936—3.10 per cent, August, 1939—2.93 per cent; Aa bonds, 1936—3.28 per cent; August, 1939—3.11 per cent; A bonds, 1936—3.78 per cent; August, 1939—3.80 per cent.

I don't think the fact that the dotted line becomes a solid line in parts is indicative of anything. I think that is due to the process of reproduction. I believe it is entirely due to the method by which the chart was reproduced.

Now, I was just pointing out that the bonds of Aaa and Aa rating were in August, 1939, considerably below the 1936 level, while bonds of A rating remain slightly above that level. The risk factor associated with bonds of Baa rating is reflected by the marked rise commencing
1467 in the latter part of 1937 and culminating in the early part of 1938, since which time the yield has declined and in August stood at 4.85 per cent, or almost one-half per cent higher than at the close of 1936, in contrast with the experience of bonds of higher grade.

I think further examination of Chart 1 reveals the virtual collapse of the bond market in 1931 and the continuation of an extreme degree of weakness in that market for the greater part of three years. In this period bonds most severely affected were those regarded as subject to greater investor risk. It is noteworthy that while the yields on Baa and A bonds reached 11.63 per cent and 8.5 per cent, respectively, in this period, the highest yield recorded for Aaa bonds was only 5.41 per cent and for Aa bonds 6.60 per cent.

The data upon which Chart 1 is based appear in Schedule 1 which will be found immediately following the chart. For example, page 1 of Schedule 1 contains the composite monthly and annual average yields for each year commencing with the year 1920 on bonds of 120 domestic corporations including bonds of the four highest Moody bond rating groups. These rating groups are, respectively, Aaa, Aa, A and Baa. Similarly, page 2 contains the average yield on bonds of Aaa rating, page 3 on bonds of Aa rating, page 4 on bonds of A rating, and page 5 on bonds of Baa rating. Each rating group includes, so far

as they are available for inclusion, 30 domestic corporation bonds. I pointed out earlier that because of the dearth of industrials in the higher ratings, the Aa and Aaa groups could not contain 30 bonds.

A footnote on page 5 indicates the source from which the data were taken. The lines on the chart can be readily associated with the data contained in these pages of the schedule. For example, page 1 of the schedule shows that the composite yield on bonds of 120 domestic corporations was 4.50 per cent in April, 1938, and this is easily seen by reference to the chart to be the case.

Page 6 describes the mathematical basis of the yield computations. Monthly yield averages are unweighted arithmetic averages of daily yields computed on the basis of closing prices and calculated to maturity dates. No, the statement I have on page 6 under the heading, "Compilation of Moody's Bond Yield Averages," is not a statement of my own. It is a statement which has been published by Moody, and by reference to page 7, a footnote indicates that the source of the definition of Moody's ratings was the "Moody's Public Utilities Manual for 1938" page VIII. I show also the Moody ratings in the "Key to Moody's Bond Ratings" on pages 6 and 7.

Referring to pages 6 and 7, you will note that bonds of Aaa rating are defined as representing the highest type of bond investment. Principal and interest on such bonds are protected by characteristically wide margins, the fluctuation in which is not at all likely to jeopardize the security. Among all rating groups, these bonds hold the best prospect of unchanging quality. Bonds of Aa rating lack one characteristic or another of the highest type of bond investment, while bonds carrying the A rating are more vulnerable to fluctuation in the borrower's position than in the case of the first two classes. It is indicated that some speculative elements exist in bonds of Baa rating, and that the extent and stability of income and security may be satisfactory but certainly not noteworthy.

1468 Pages 8 to 11, inclusive, contain lists of the bonds currently used in Moody's bond yield averages according to rating groups. Aaa bonds, grouped according to classification as "Industrials," "Railroads" and "Public Utilities" are listed on page 8, Aa bonds are similarly listed on page 9, A bonds on page 10, and Baa bonds on page 11. It will be noted that, as we mentioned before,

the lists of industrial Aaa, Aa, and B bonds contain fewer than ten bonds, but this is because there were not a sufficiently large number of bonds available to include in these groups.

In introducing Chart 2, I would like to relate it, also, to Chart 3 and state that the purpose of these two charts is to show that the trend of bond yields is not an isolated phenomenon but is part of the broad movement of interest rates in general, as indicated by the somewhat similar patterns observed in interest rates on 4-6 months commercial paper and 60-90 day time loans, as well as in yields on U. S. Treasury bonds. I mean the pattern of the curves shown on Chart 2 and Chart 3 seems to follow the same direction since 1932. Of course, they are on different levels. I think that in a general way it could be said that the curves follow the same general pattern since 1932 as the composite line on Chart 1. The period 1935 through 1939 reflects relatively little change in the rates for either 4-6 months commercial paper or 60-90 day time loans.

In other words, Chart 2 and Chart 3 are merely to portray historically the movement of interest rates, as such, and are not an attempt to offer short term money rates or yields on Treasury bonds as a measure of a proper rate of return.

Chart 2 shows the interest rates charged by banks and is based on averages computed by Standard Statistics Company from data appearing in the Commercial and Financial Chronicle for 4-6 months commercial paper and 60-90 day time loans. The 4-6 months commercial paper is issued by such seasonal borrowers as Armour's and Swift's and is sold to banks through dealers. The 60-90 day time loans on the other hand represent loans to New York Stock Exchange brokers and are secured by mixed collateral, substitutions of collateral being permitted from time to time. Two factors which may be assumed to effect a higher rate for 60-90 day loans than for 4-6 months paper, despite the apparent inconsistency due to the time limits, are that the rate for 60-90 day loans is understood to be more or less fixed by agreements between banks and that a service charge element is presumed to exist by reason of the allowance of substitutions of collateral.

Questions by the Examiner.

The 60-90 day loans bear a rate of interest more or less fixed by agreement, which accounts for the course of the line, which was extremely irregular for a time and then flattened out into a series of plateaus in the lower part of the curve. I can not answer definitely your question as to whether that rate was fixed by agreement before 1934. I can only say that I learned that at present that is the understanding. I can not say whether the Federal Reserve has instituted any method of control that would determine that. Incidentally, my information concerning the explanation of these two lines was obtained through the Federal Reserve Board.

1469 The current rate of 1¼ per cent on 60-90 day time loans is indicated as being lower than at any time since 1920 except for the period extending from 1932 to 1935, while the rate on 4-6 months commercial paper is again at the lowest level since 1920 at ¾ of 1 per cent, after having risen to 1 per cent early in 1937.

Direct Examination by Mr. Slaff Resumed.

Following that chart is Schedule No. 2, pages 1 and 2, which show in figures what the chart portrays graphically. There are also certain footnotes on both pages of Schedule 2 which give the exact source of the data.

Chart 3 shows the yield on U. S. Treasury bonds due or callable after twelve years, as computed by the U. S. Treasury Department for the period since 1920. This chart shows a somewhat similar trend to that shown in Charts 1 and 2, that is, a low point for the period 1920-1936 being reached at the end of 1936 in this case with a yield of about 2¼ per cent. Increasing in 1937 to 2.80 per cent, the yield on U. S. Treasury declined gradually through 1938 and more rapidly in 1939 to 2.16 per cent for July, 1939.

Undoubtedly the low yields associated with Treasury bonds as compared with corporation bonds of Aaa rating, that would be 2.16 per cent against 2.93 per cent, may be attributed to the low risk associated with these securities and to certain tax-exempt features of Treasury bonds.

From the data presented in this section it is seen that money rates are now lower than at any time since 1920

and probably lower than at any time in the history of the country.

A one-page schedule following that chart shows the figures which are portrayed graphically on the chart and the source of the data.

Chart 4 shows Moody's bond yield averages commencing with the year 1934, based on the bonds of 40 public utilities according to Moody's bond ratings. In contrast with Chart 1, which, for bonds of 120 domestic corporations shows declines in yield below the 1936 level only for bonds of the two highest rating groups, that is Aaa and Aa, Chart 4 shows declines below that level through August, 1939, for public utility bonds of all four rating groups. The August, 1939, averages for the various groups are as follows: Aaa—2.83 per cent, Aa—2.97 per cent, A—3.41 per cent, Baa—4.39 per cent.

This chart, I think I have previously stated, deals exclusively with public utility bonds. The names of the companies whose bonds are included in each one of the classifications are shown on page 3 of Schedule 4.

Chart 5 shows Moody's bond yield averages for the period since 1920, based again on bonds of 120 domestic corporations classified as railroads, public utilities, and industrials. They are classified functionally, using the term broadly, rather than according to rating groups. That is the essential distinction between Chart 5 and Chart 1. Chart 5 segregates the bonds according to the type of business of the company as distinguished from the type or quality of rating. If there were a composite line shown on Chart 5, it would be identical with the composite line shown on Chart 1.

1470 The general trends reflected in Chart 5 are similar to those described in connection with the previous charts. In Chart 5, starting from the low point for all groups reached in 1936, the average yields increased until the summer of 1938. The rise in yield for railroad bonds in this period was much more abrupt than in the case of public utilities and industrials and carried the yield on railroad bonds to 5¾ per cent, while public utility yields increased only to 4.11 per cent and industrials to 3.55 per cent. From those points the trend toward lower yields has continued with minor interruptions for all groups, but only in the case of public utilities and industrials have the yields established new lows, the August, 1939, figures being 3.40 per cent for public utilities, and 3.68 per cent

for 1936, and 3.21 per cent for industrials, and 3.36 per cent for 1936.

Questions by the Examiner.

The only explanation for the course of the public utility bond yield that I could give would be the investor's attitude. The yields on these securities are based on market prices, as I have stated, and those prices in turn reflect the favor or lack of it on the part of investors.

Direct Examination by Mr. Slaff Resumed.

Railroad yields in August averaged 4.41 per cent, which was still considerably higher than the 3.95 per cent yield recorded for January, 1937, reflecting, as I have just stated, the greater degree of risk attaching to railroad securities from the viewpoint of investors.

The chart indicates that the experience of the industrial group has been somewhat more favorable than that of the public utilities, especially in recent years, but this may be due in part to the limited number of industrial bond issues available for inclusion in the four highest Moody bond rating groups.

This chart is supported by Schedule 5, pages 1 to 3, which shows in figures the data portrayed graphically on the chart and which contains the source of the data, and pages 4 through 6, which contain the names of the companies used currently by Moody's compilations, which are shifting lists.

Chart No. 6 shows the average price of new capital as indicated by Moody's weighted averages of yields on newly issued domestic bonds of industrial corporations, railroads, and public utilities. By the "price of capital" is meant the average yield to maturity on newly issued bonds, such yields being weighted by the amounts of all new issues floated in any given classification or period. The classification "utility bonds," which includes bonds of light, power, and gas utilities, consists wholly of operating companies. The yields indicated in Chart 6 are not, of course, representative of bonds of the same companies or of the same issues at any one date or during any given period. This chart shows a generally downward trend in the price of new capital for all classes of companies commencing about 1932 and continuing until about

1936, from which date the decline has been less pronounced in general. The yields are on the basis of the offering price.

1471 In 1938 the yield on newly issued utility bonds had fallen to 3.49 per cent, which represented the lowest point for any year throughout the entire period since 1921. We have superimposed on that compilation a line showing Federal Power Commission compilations supported by data shown in Schedule 7. These compilations show an average yield on newly issued bonds of electric utilities beginning with the year 1935. I think the lower caption with the arrow points to the lowest line on the chart and states that it is a Federal Power Commission compilation of electric operating companies. That line seems to cross the curve for utility bonds, light, power and gas, in the year 1937 and seems to be somewhat below it again in 1938. As a matter of fact, the 1938 figure for the utility bonds, including light, power and gas, is 3.49 per cent, while the electric utility bonds for the year 1938 average 3.43 per cent or slightly lower than the figure for the utility bonds in general.

That chart indicates that since 1921 the average price of new capital for industrial concerns has been consistently higher than that for public utilities. It is also indicated in that connection that from 1921 through 1932 the market for new railroad bonds was more favorable than for public utility bonds. In 1933, however, this position was reversed and public utility bonds were marketed from 1933 through 1936 on more favorable terms than either railroad or industrial bonds. While the yield on newly issued railroad bonds was slightly more favorable in 1937 and 1938 than on public utility bonds in general, the lowest yield in 1938, as I have just stated, was for bonds of electric operating utility companies for which the average yield in 1938 was 3.43 per cent.

The data supporting the line on Chart 6, representing the average price of new capital for electric operating utilities as compiled by the Federal Power Commission, are summarized in Schedule 7, where the information is shown by years on page 1 and according to Moody rating groups on pages 2 and 3.

The rapid decline in the price of new capital, particularly noticeable since 1934, suggested that the decline could be attributed not only to the course of the bond market itself

but also to the quality of the offerings. This assumption is greatly strengthened by comparison of the average price of new capital for utility bonds with the average yield on utility bonds of the three highest Moody bond rating groups, i. e., Aaa, Aa and A, so the line superimposed on Chart 6, showing the average annual yield from 1934 to 1938 on 30 utility bonds carrying these Moody ratings, very closely conforms to that showing the price of new capital for utility bonds, and indicates that a very large proportion of the utility bonds offered during that period consisted of bonds of high rating.

That is the explanation for that superimposed line and also explains why we omitted the Baa. We wanted to find out whether, if we took the higher or the highest rating groups, we would find that the resulting curve would conform to the curve for the average price of new capital of utility bonds in general.

Questions by the Examiner.

A graph of Baa public utility bonds, together with that for Aaa, Aa and A, is contained in the preceding Chart 4. Chart 4 gives the information for public utilities, referring to yields on outstanding bonds and not as to new capital.

1472 *Direct Examination by Mr. Slaff Resumed.*

Schedule 8 contains a description of all known electric utility bond issues sold during the first eight months of 1939 and this schedule, consisting of three pages, shows that the market for such bonds, that is, electric utility bonds, continues to be exceptionally favorable, the weighted average yield on all newly issued electric utility bonds during this period, as shown opposite the words "Grand Total" on page 3, being 3.36 per cent or slightly lower than the corresponding average for the year 1938. In this connection it will be noticed, however, that the only new bond issue offered to the public during this period having a Aaa rating was that of Consolidated Gas, Electric Light and Power Company of Baltimore, $7,000,000 principal amount, which sold at a price to yield 2.75 per cent to purchasers.

You state that it appears to you that on this Schedule 8

we had three bonds with Aa rating, ten with A rating, eight with Baa rating, and three with Ba rating, while there were eleven which had no ratings assigned. That is correct with the exception of the A rating group, in which I can count only eight. The Baa bonds that were issued totaled $107,000,000, which was very roughly 20 per cent of the total, and the A bonds totaled $260,000,000, which according to the same very rough calculation is about 40 per cent of the total. The financing done this year and listed in Schedule 8 was represented to the extent of approximately 60 per cent of the total by issues having ratings of A or Baa. The source of the information for Schedule 8 was the various financial publications such as, primarily, the "Commercial and Financial Chronicle," with some reference to the supplements to "Moody's Manual" and "Investments in Public Utilities."

Schedule 9 presents a compilation of all known preferred stock issues of electric utility operating companies sold in the period 1935-1938, showing the cost of money to issuing companies and the yields to purchasers. Comparison with Schedule 7 indicates the relative importance of preferred stock as compared with bonds as a financing medium for electric utilities during this period, bonds and preferred stock being issued in proportions of about 22 to 1, based on dollar volume during the four-year period. Yes, I mean 22 times bonds as per preferred stock issued in dollar amount.

However, at this point I would like to refer to "Statistics of Electric Utilities in the United States" for the year ending December 31, 1937, Classes A and B, page 3, published by the Federal Power Commission. In that publication it is shown at page 3 that preferred stock comprised at December 31, 1937, 15.9% of all outstanding securities, whereas long term debt comprised 51.2%, which indicates that the actual securities outstanding of the various electric utility companies are not in the proportions that are shown by these two schedules. They are both correct for the thing which they indicate.

The statistics published by the Federal Power Commission show the composite balance sheet of the electric utility industry for Class A and B companies, and from that I have derived these percentages of preferred stock and long term debt as percentages of total outstanding securities, whereas in Schedule 9 and in Schedule 7 the facts por-

trayed there merely are issues of securities during
1473 the period 1935 through 1938, which has no specific relation. The distinction is that the Federal Power Commission statistics show outstanding securities, and Schedules 9 and 7 show issues during the period.

In addition to what I have said I would like to call attention to the yields shown by Schedule 9. The average yield to purchasers on preferred stock issues sold in 1935 was 4.38 per cent. There was one issue in that year. For 1936 the yield was 4.62 per cent; for 1937 it was 4.63 per cent; and for 1938 it was 4.85 per cent. The over-all yield during that period on issues of preferred stock was 4.62 per cent. In addition to the yield to the public I show also the cost to the company, which is 4.77 per cent. There appears to be a progressive increase during those four years of the yields on preferred stock. The yields for 1936 and 1937 were almost identical, and the fact is that these yields varied from an average of 4.38 per cent in 1935 to 4.85 per cent in 1938. However, it must be borne in mind that we have here no segregation of yields according to any known rating groups for preferred stocks.

Schedule 10 shows a compilation of new preferred stock issues sold during the first eight months of 1939. In this period the average yield to purchasers was 4.63 per cent, but the yields for individual issues ranged from 4 per cent to 6.90 per cent in quite a variation. In this connection, it will be seen that the 4 per cent yield was for a limited number of shares of an issue of 4½ per cent Series B Preferred Stock of Consolidated Gas Electric Light and Power Company of Baltimore. However, a rather large issue of West Penn Power Company, 297,000 shares of 4½ per cent preferred stock was sold to yield 4.09 per cent to investors and, incidentally, this 4.09 per cent yield was the lowest yield, if we except the 4 per cent yield shown for the small number of shares, recorded for any new preferred stock issued during the entire period since 1935.

A comparison of the average cost of new capital for bonds and preferred stock indicates, as you would expect, that the investors are willing to accept a lower yield on bonds because of the greater security of principal and dependability of income.

(Nove[illegible] 7, 1939)

Just prior to the conclusion of my testimony last night

I referred to certain statistics of electric utilities in the United States published by the Federal Power Commission for the year ending December 31, 1937. Those statistics were published in two volumes, and the volume to which I was referring was Volume I. Volume I of those statistics contains data on balance sheets, income statements, and outstanding securities of Class A and Class B electric utilities, while Volume II contains data on operating revenues, operating expenses, electric fixed capital, and physical quantities for the same classes of companies.

We now come to the third group in Exhibit 185 headed "Economic Conditions." Chart 7 shows the range of the composite wholesale commodity price index of the United States Bureau of Labor Statistics over the period since 1920, as well as the indexes for raw materials and finished products. This chart clearly portrays the severe decline in prices which started in 1929 and reached a record low point for the period in 1933. It will also be seen that from March, 1933, to March, 1937, prices rose with minor interruptions, the composite index rising from 60 per cent to 88 per cent of the 1926 level during this period. Since 1937 there has been a gradual but steady decline in whole-
1474 sale prices, with June, 1939, indexes at the lowest levels since 1937.

The all-commodities index covers 813 commodities. The source of that index is indicated at page 3 of Schedule 11. The indexes were computed by the United States Bureau of Labor Statistics and are contained in their publications. As I understand it, the index is weighted according to the importance of the various commodities in the national economy.

The index for June, 1937, for all commodities was 87.2 per cent of the 1926 average. For July, 1937, it was 87.9 per cent. Since July, 1937, there has been a steady decline practically month by month in that index down to the last date shown on the chart, which is June of 1939, at which time the index stood at 75.6, as compared with 87.2 for June, 1937. It has been, on the whole, a downward trend. I find here that in 1930 the average for the year was 86.4; in 1931 the average for the year was 73, and in 1938 the average was 78.6; so that compared with 1930 there has been a decline of approximately 8 points, and as compared with 1931 a rise of approximately 5.5 points. Looking at the first six months of the year 1939, a very rapid mental calculation here indicates that the average for the first

half of the year is about 76.5. As to what has happened since June, all I can answer is that for July it shows a further decline to 75.4, which is the last figure I had the opportunity to examine.

I would like to read a few excerpts from the Department of Commerce publication, "Survey of Current Business," which, I think, will relate the indexes here to show their place in economic conditions. The statement comes from the February, 1939, issue of that publication. The quotation is as follows:

"Among the principal price-depressing influences in 1938 were the decline in industrial activity and in consumer income; the heavy supplies of many important farm products, resulting from the record 1937 crops and the above-average harvest of 1938; and the large stocks of many other staple commodities. The expansion in business activity during the second half of 1938, while checking the decline in prices, did not result in any general rise. The need for further inventory readjustments in certain lines, the large volume of idle resources, and the unsettled world political situation tended to prevent any great amount of forward buying, which frequently has been an important price stimulus in the initial stages of expansion in industrial activity. • • •

"As is usual in a period of marked changes in business activity, prices of raw and semifinished materials declined more rapidly than prices of finished products in the 1937-1938 recession and responded more quickly to the rise in industrial activity that began in the midyear (1938) • • •.

"The fall in prices of industrial raw and semifinished materials, which was halted in June (1938), reflected chiefly the reduced purchases resulting from declining business and the accumulation of stocks in producers' hands. Sharp advances from late June to July (1938) in prices of staple commodities (notably rubber, nonferrous metals, scrap steel, hides and silk) were reflected in a moderate advance in the index of prices and industrial raw and semifinished materials, as well as the sharp rise in the spot commodity index. There was no sustained general rise in prices of these materials, despite the rapid advance in indus-
1475 trial activity subsequent to June (1938), as large stocks were available to meet increased demands."

These comments serve to indicate that wholesale commodity prices are sensitive to and reflect changes in busi-

ness trends, industrial activity, and the national economy in general.

Schedule 11, pages 1, 2 and 3, shows the supporting data in back of the graph lines on Chart 7.

Chart 8 shows the Federal Reserve Board's index of industrial production and the Department of Labor's indexes of factory employment and payrolls for the period since 1920, all without adjustment for seasonal variation. The Federal Reserve Board also publishes a seasonally adjusted index of industrial production, as well as an adjusted index of factory employment derived from the unadjusted indexes computed by the U. S. Department of Labor. For the purposes of this study it was considered preferable to use unadjusted indexes for all three series for the sake of uniformity. Comparison of the adjusted and unadjusted indexes for industrial production discloses slight variations, but the general pattern of the indexes over a period of time is quite similar. The seasonally adjusted figure, for example, shows the peak in industrial production following 1933 occurring in December, 1936, at 121 per cent of the 1923-25 average, whereas the unadjusted index shows the peak occurring in March, April and May, 1937, when that index stood at 122 per cent of the 1923-25 average.

In other words, the adjusted indexes generally follow the pattern of the indexes used here. That merely would appear to precede, by a month or two, the pattern of the unadjusted index.

The index of industrial production serves as a measure of changes in the physical volume of the country's industrial output and is made up of two components, manufactures and minerals, covering industries which, in the base period 1923-25, represented directly and indirectly about 80 per cent of the total industrial production, according to Census data. The base period 1923-25 means that the average for that period was taken as 100 per cent.

The chart indicates that industrial production, after reaching in March, 1937, its highest level since 1933, was maintained through May, declined moderately in June, and commencing in September fell abruptly through the remainder of 1937 and more gradually thereafter until May, 1938. From 77 in May the index advanced to 104 in November, 1938, and fell to 94 in May, 1939. The month

of June, 1939, witnessed a reversal of the downward trend, the index for that month advancing to 98.

The chart also shows that the general pattern of the trend in industrial production has been reflected also in the indexes of employment and payrolls. It may be observed that early in 1937 the paths of the employment and payrolls indexes met for the first time since 1929, but that since 1937 the gap between them has broadened, indicating that total wage payments are lower now than in 1937, which was the best year that business has experienced since 1929.

1476 *Cross-Examination Interposed by Mr. Morgan.*

I would not be prepared to make any statement concerning wage scales. I have made no study of comparative wage scales between the last year or two and the present time, and 1930 and 1931, for instance. I have some data which I propose to introduce which throws some light on that, but it is not a very extensive study.

Direct Examination by Mr. Slaff Resumed.

Pages 1, 2 and 3 of Schedule 12 are supporting data in the back of Chart 8.

Chart 9 represents another attempt to depict economic conditions and shows carloadings, steel ingot production and building contracts awarded indexes based on a computed normal equal to 100. This chart also shows the decline commencing in 1929 followed by recovery commencing in 1933 and leading up to 1937, in the latter part of which year another decline is recorded. Starting in the early months of 1938, a considerable rise in all indexes occurred but was reversed late in 1938, this time the decline continuing almost to midyear of 1939. All three indexes currently, that is, as of July, 1939, reveal an upward trend but have not yet reached the levels established in the latter part of 1938.

The chart is supported by Schedule 13, pages 1 to 3.

Cross-Examination Interposed by Mr. Morgan.

I have not had the opportunity to carry these figures forward any further than as shown, except perhaps another month; and the change would not be conclusive because

the figures that I have are preliminary figures, that is, they are published as preliminary figures. I would be glad to furnish that information.

Direct Examination by Mr. Slaff Resumed.

Chart 10 shows the total amount of national income payments by type of payment for the years 1929 to 1939, inclusive, as computed by the U. S. Department of Commerce. A description of these data in some detail is contained in an article which appeared in the October, 1938 issue of the Survey of Current Business. Briefly, however, the series is intended as an index of the current flow of income to individuals. For this reason the series is not identical with the annual estimates of national income published by the Department of Commerce. The principal differences are that in arriving at estimates of national income payments, all business savings and employer and employee contributions to Social Security, contributions to Federal retirement, and employee contributions to railroad retirement funds are deducted from national income, and all direct relief payments, veterans' compensation, benefit payments under the Social Security Act, and annuities and refunds to Federal employees are added.

The chart shows, as might be expected, that the bulk of national income payments represents compensation of employees. The other major classes of income payments consist of entrepreneural income and dividends and interest.

In 1929 national income payments are estimated to have been in excess of 78½ billions of dollars. The chart starts with that 78½ billion dollars in 1929. By 1933, the figure had declined to less than 46 billion dollars, or only 58 per cent of the 1929 total. In 1934 national income payments increased to 52 billions, in 1935 to 56 billions, in 1936 to over 64 billions, and in 1937 to about 69 billions, 1937 being the peak year following the decline which 1477 carried through to 1933. From 1937 forward the chart shows for each month a 12-months ending total in order to disclose the trend. Up to that point the chart shows only the yearly total. That was one point on each line, the point in each case being on the line immediately above the year listed at the bottom of the chart. From this point on, that is from 1937 on, the chart discloses the 12-months period for the 12 months ending each month of the year.

The purpose of showing the 12-months ending figure is to carry the trend forward so you can see which direction it is heading in. It is comparable to the figures that are published by corporations where they give each month the figure showing the 12 months' earnings for the month. It is comparable to a moving total. In other words, if the index figure at the beginning of the year were 100 and at the end of the year 90, but at the middle of the year it had been 80, and if I had just plotted the two points at the beginning and end of the year, I would show a downward trend; whereas if I plotted the three points, one at the beginning, one in the middle, and one at the end of the year, I would show a downward trend for the first half of the year and an upward trend for the last half of the year.

Cross-Examination Interposed by Mr. Morgan.

The Department of Labor publishes a series of statistics on average factory weekly earnings. As to whether, in regard to the cost of pipeline construction and operation, the wage scale is more important than the aggregate income of the whole country, that gets down to a question of purpose. Here we are trying to depict general economic conditions. There is a chart contained in this Part I which gives an over-all average of the wage scale, factory wage earners. Let me refer you to Schedule 23, which appears toward the end of Part I. That gives a wage scale, presented in dollars, and with a correlary index.

Direct Examination by Mr. Slaff Resumed.

I had started to tell you that from 1937 on the chart indicates a 12-months average. It is indicated that the trend of national income payments was steadily downward through all of 1938, with the result that total income payments for that year were almost 5 billion dollars less than in 1937. Beginning in 1939, however, this downward trend appears to have been reversed, and each of the first six months of 1939 has witnessed a gradual but consistent increase in total income payments. This movement is in accordance with that previously noted in the discussion of production, employment and payrolls.

Schedule 14 supports Chart 10. I am asked what keeps

the dividend and interest payments fairly constant in amount. As a matter of fact, I think if you were to compute the changes in that little section, you would find that while they do not appear graphically to change very much, there is a decided percentage change. That shows on the next page, on Schedule 14 in the column in the middle of the page headed "Dividends and Interest." You see, that column starts out in 1929 at $11,331,000,000, and in 1937 the corresponding figure was down to $9,563,000,000. Comparing 1935 with 1936, which on the chart shows no great relative difference, I see that for 1936 dividends and interest were a billion dollars more than for 1935.

The differences shown on Chart 2 and Chart 3 are
1478 much greater than on Chart 10. When I spoke of dividends and interest on Chart 10, I was referring to dividends on stock and interest on bonds or other types of securities. It represents dollar totals, income received or paid out. The interest on Chart 2 represents interest rates on two specific types of loan, 4—6 months commercial paper, and 60-90 day time loans. Chart 3, of course, represents the yield on Treasury bonds, and those figures in Chart 2 and Chart 3 are merely rates; they are not indicative of volume of income. I would say that if the yields on investments declined, the tendency would be for income from investments to decline.

1479 If the amount of Treasury bonds outstanding, on which Chart 3 is based, does not change materially but the public's desire for those bonds increases, the yield will go down. The dollar amounts of income received by the public, however, will not change. Chart 10 shows the dollar amounts of income.

Questions by the Examiner.

So far as I know, there is no published refinement of the gross income figures shown on Chart 10. Now, in the comments supporting the changes in national income payments, which appear in the Survey of Current Business, it is indicated that the writers had access to information concerning dividends and interest as such separately, but the figures are not published separately, just in a combined form. Of course, no indication is given whatsoever as to the breakdown of the source of this income, whether it is from government bonds or corporation bonds, or stocks. No information of that sort is published.

Direct Examination by Mr. Slaff Resumed.

We now pass to Chart 11. In any discussion of national income, some means of determining the relative value of the dollar, that is, its purchasing power over the necessities of life, is desirable in order to compare changes in real income as distinguished from cash income. For this purpose, the index of the cost of living may be used. Such an index has been computed by the National Industrial Conference Board to show the trend of living costs of wage-earners' families. The index is based on a comprehensive list of retail prices and rents in five classifications which are weighted according to their relative importance as follows: —and these are percentages of the total—Foods, 33; housing, 20; clothing, 12; fuel and light, 5; and sundries, 30. In the latter group are included such items as household furnishings, reading materials, recreation and tobacco, as well as organization dues, medical care, carfare, drugs and toilet articles, and candy.

By obtaining the reciprocal of the cost of living index (base year 1929) the purchasing power of the dollar at 1929 prices may be determined for any date. For example, Schedule 15 indicates that the cost of living index for the year 1933 was 74.9. The reciprocal of this index is 1/74.9, or 0.01335, which, translated into dollars and cents becomes $1.335. This represents an increase of 33.5 per cent since 1929 in the purchasing power of the dollar in its command over the necessities of life for the average wage-earners' family.

Now, I think it may make the statement a little clearer if I were to give you a simple illustration bringing that point out. If you assume that there has been a change in the cost of living index between 1929 and 1933 from 100 down to 80 in 1933, you can proceed along this line to determine what change has occurred in the purchasing power of the dollar. Assume, for example, that four units of a given commodity can be purchased in 1929 for $1, the index for cost of living having declined to 80 in 1933, those same four units in 1933 could be purchased for 80 cents. It is quite clear then that in 1933 five units of that commodity could be purchased for one dollar. In other words, the number of units which may be purchased in 1933 1480 is 25 per cent more than the number of units which could be purchased in 1929. Therefore, there has been an increase of 25 per cent in the value of the dollar, from

a purchasing standpoint, and that indicates that the dollar, at 1929 prices, was worth $1.25 in 1933.

Schedule 15 also shows national income payments at 1929 prices, on the basis of the cost of living index which I have used. Also the chart, of course, indicates by a curve the line showing national income payments at 1929 prices compared with the index of actual cash income during that period.

Schedule 15 also indicates that for every $100 of national income payments received by individuals in the year 1929, only $58.40 was received in 1933. That is seen by reference to column B. But each dollar of this reduced amount of income was worth 1.335 times as much as the 1920 dollar in its command over the necessities of life, so that $58.40 of 1933 cash income was equivalent to $77.90 of 1929 cash income. That last figure of $77.90 of 1929 cash income would be indicated by the figure 77.9 in the third column on Schedule 15 opposite the year 1933.

Therefore, although the index of national income payments declined from 100 in 1929 to 58.4 in 1933, the decline in real income was only from 100 to 77.9. In other words, the effects of the depression would have been much more severe if the cost of living had remained at the 1929 level.

It is of interest to note that the purchasing power of income payments received by individuals in 1937 on the basis indicated, was practically the same as it was in 1929. In 1938 there was a decline both in income received by individuals and in its aggregate purchasing power, while in 1939 the first six months have shown a steady improvement from the standpoint of both cash income and real income.

In my preceding discussion I spoke particularly of 1933 when I was discussing any year after 1929. That was because 1933 was at the low point. I want to emphasize the conditions that existed at the low point, because that gave it the greatest contrast and made it easier to illustrate the problem.

Both my chart and schedule carry the figures and the graph lines down through June 30, 1939. I might add that for the year 1938 and a portion of the year 1939 I have used a 12-months' moving average in order to carry or disclose the trend of those payments during that period of time. That is a 12-months' moving average. Due to the method of reproduction in setting out the years 1938 and 1939, it states those are 2-months' averages ending in the months shown there. That should state that 12 months are

shown on there. That completes the section on general economic conditions.

This is followed by a section called in the Table of Contents "Comparative Risk". On Chart 12 the trend of corporate earnings of public utilities is compared with the trend for industrial and railroad corporations. From this chart it may be seen that the trend of utility earnings has not been subject to very sharp deviations as in the case of industrials and railroads. While there was a sharp
1481 decline for the latter two groups, commencing in 1929, and a pronounced rise commencing in 1933, particularly for industrial corporations, no comparable decline from 1929 to 1933 was experienced by public utilities, and utility earnings have shown a more gradual recovery. In all three corporate groups there has been a decline in earnings evidenced since the latter part of 1937, but the decline in public utility earnings has been less pronounced. It will be noted that an upward turn in earnings is evident in the first quarter of 1939 for each of the three groups.

In back of that chart is Schedule No. 16, pages 1 to 6, which show the supporting data and which contain a foot note, or a note showing the source of the statistics. The names of the companies used are not shown in the supporting schedule. I believe it is possible to obtain such a list, if it would be desired. This chart is based on Standard Statistics data, and the data may be found in Volume 3, Current Statistics Section of Standard Trade and Securities, a publication of Standard Statistics Company.

Chart No. 13 shows the relationship of net profit to invested capital based upon studies and publications of the Standard Statistics Company. Two methods of computing invested capital are used. By one of these methods invested capital is considered as representing outstanding securities plus surplus and capital reserves. This method is the basis of the data reflected in Chart 13. Net profit, as defined in the computations used for this chart, represents the amount available for fixed charges after depreciation in order to obtain comparable figures. Reference to Chart 13 indicates again that utilities have greater stability of earnings and a relatively lower investor risk than railroad and industrial corporations.

I have made no calculation which shows the average percent net profit to total invested capital for each one of those three groups for the entire period 1927 to 1938. You ask me to check your figures bearing on that point, as follows:

The percentages of net capital to total invested capital shown for 400 industrial corporations for each of the years 1927 through 1938, divided by 12, average 6.6 percent; for the years 1930 through 1938, for the same group, 4.6 percent; for the group of 21 leading utility corporations, for the period 1927 through 1938, 5.95 percent, which compares with the 6.6 for the industrials; for the average, for the period 1930 through 1938, for the 21 utility corporations, 5.6, which compares with the 4.6 for the industrials; for railroads, for the period 1927 through 1938, an average of 3.87 percent, and for the period 1930 through 1938, 3.13 percent. I will be glad to check those figures.

I believe I can furnish the names of the 21 leading utility corporations which make up that list, if you will allow me to look at my papers.

Chart 14 is the same as Chart 13 except that Chart 14 is based upon invested capital as representing the property accounts less reserves for depreciation plus inventories. I need add no further comment. I believe the characteristics revealed by both charts are similar and indicate that in the case of the utilities you have a more stable level of earnings, not subject to the very sharp fluctuations that are obtained for the railroad and the industrial corporations.

I would like to refer again to previous testimony on bond yields as indicating that since 1921 public utilities have enjoyed, on the whole, about as favorable a market for
1482 their securities as other forms of enterprise; that since 1933 they have been able to obtain capital at lower costs than other enterprises, and that at least since 1935, in the case of newly issued electric utility bonds, they have been offered on the average at even more favorable terms than those obtained for public utility bonds as a class. Thus, the attitude of investors aids in confirming the favorable position of public utilities from the standpoint of comparative risk.

Questions by the Examiner.

I am referring here specifically to the charts in the section entitled "Utility Interest Rates and Yields". There are a number of these charts. I think it can be quite clearly related.

Direct Examination by Mr. Slaff Resumed.

Chart 15 shows the comparative rediscount rates of the New York and Chicago Federal Reserve banks and indicates that these rates are at the lowest point since 1920. Now the rate of the New York Federal Reserve Bank currently is 1 percent and that of the Chicago Federal Reserve Bank 1½ percent. In examining this chart I have found several points of interest that I would like to mention.

The date of the Federal Reserve Bank of Chicago was the same as that of the New York bank during all or a part of the years 1920 and 1921 and from 1926 to 1933, inclusive, and higher than the rate of the Federal Reserve Bank of New York during the years 1922 to 1925, inclusive, and from 1934 to date except for a few days in August 1937 when both rates stood at 1½ percent. Examination of Chart 15 indicates that when the Chicago rate was higher than the New York rate the variation was generally equal to form 0.5 percent to 1 percent, with an occasional variation of 1.5 percent, as in the latter part of 1922 and early part of 1923. Only twice since 1920 has the New York rate been higher than the Chicago rate, namely, in 1929 and 1932. During 1929 both banks maintained their rates at 5 percent, except from August 9 to November 1, when the New York bank's rate was raised to 6 percent. In 1932, the Chicago bank reduced its rate from 3.5 percent to 2.5 percent on January 25, whereas the New York bank did not reduce its rate to 2.5 percent until June 24. In 1928, when both banks began to increase their rates, it is indicated that the initiative was taken by the Chicago bank, which in three successive moves increased its rates from 3½ percent to 5 percent, corresponding increases being made by the New York bank after intervals of from two to 28 days. No change in rates has been effected by either bank since August, 1937, so far as I am aware.

Schedule 19 supports Chart 15.

Questions by the Examiner.

You ask me what conclusion is to be drawn from those relationships. Ordinarily, you would expect the rates of the New York bank to be lower than those of the Chicago bank, inasmuch as it is the largest money center in the country and the greatest volume of transactions takes place in New York City. As Mr. Ostrander explained yesterday,

the Federal Reserve Banks make use of the rediscount rate in an attempt to control financial conditions, and in periods of boom, for example, as in 1929, you would naturally expect the bank to make it less profitable for the member banks to obtain loans from the regional banks. In an at-
1483 tempt to reduce the amount of credit which might be extended, and which might have the effect of continuing undesirable boom conditions, the bank would make it more costly for the member banks to do business; and, therefore, since they are operating on a profit motive, they would not tend to borrow or increase their borrowings.

Direct Examination by Mr. Slaff Resumed.

Chart 16 compares the prevailing rates charged customers by banks in principal cities of the country and shows separately the rates for banks in New York, banks in eight northern and eastern cities exclusive of New York City, and banks in 27 southern and western cities. As indicated in Schedule 20 supporting the chart,—and that may be found on page 4 of Schedule 20,—the figures relate to rates charged by reporting banks to their own customers as distinguished from open market rates, the averages being based on rates reported for three types of customer loans —commercial loans, and demand and time loans on securities. The cities included in the group of eight other northern and eastern cities and 27 southern and western cities are listed on page 4 of Schedule 20. As indicated by Chart 16, the rates charged customers by New York City banks are considerably lower than those charged by the banks outside New York, while the rates of the eight northern and eastern cities other than New York in turn are lower than the rates charged by the southern and western cities.

It will be noted that all rates have drifted steadily lower since 1933. The levels reached in February, 1939, in which month the Federal Reserve Board discontinued the series, were: New York City—2.24 percent, eight northern and eastern cities, including the City of Chicago—3.33 percent, and 27 southern and eastern cities—4.09 percent.

Schedule 21 contains comparative indexes of department store sales for the United States and the Federal Reserve District of Chicago. It indicates that during the period since 1923 the level of department store sales in this district has compared favorably with that for the nation and in recent years has shown a tendency to remain somewhat

higher than that level as compared with the base period 1923-1925.

Schedule 22 contains comparative indexes of factory employment and factory payrolls for the United States, the State of Illinois and the Chicago industrial area. The index for the United States, as computed by the U. S. Bureau of Labor Statistics, is based on an average for the three years 1923-1925 taken as 100, while those for the State of Illinois and Chicago industrial area, as computed by the Illinois Department of Labor, are based on an average for the three years 1925-1927 taken as 100. In order to make the indexes comparable and at the same time more closely related to the year 1929 and subsequent years, a base period 1929-1931 was chosen and the indexes were adjusted so that the monthly average for the three years 1929-1931 is equal to 100.

This schedule indicates that since 1930 employment conditions in the State of Illinois have been somewhat less favorable than for the country as a whole, although in 1937 when the employment index for the United States reached its peak for the period at 114.8, the State of Illinois showed a corresponding high point of 107.1. Since 1937, employment in the State of Illinois has not kept pace with that for the United States, the index for 1938 falling off to a somewhat greater extent and in 1939 recovering in somewhat smaller degree than that for the nation. Employment conditions in the Chicago industrial area, in turn, have been somewhat less favorable than those for the State of Illinois, although, also in 1937, employment in the Chicago area reached a peak for the period since 1930, being only 0.6 of 1 percent below the 1929-1931 average. A decline in 1938 is also noticeable in employment in the Chicago area, but that has been followed by some improvement during the 12 months ended August 31, 1939.

With respect to payrolls, the schedule indicates the existence of similar relationships among the three indexes, but generally lower levels for all indexes after 1930 than in the case of employment. However, the improvement in 1939 over 1938 is more marked in the case of the payrolls indexes than for the employment indexes.

Cross-Examination Interposed by Mr. Morgan.

It is questionable whether I could have gotten the same character of comparative material for the States of Iowa, Nebraska, Kansas, Oklahoma, and Texas. I believe that there are only about five or six states which publish that information.

Direct Examination by Mr. Slaff Resumed.

From the fact that the payrolls indexes since 1930 have been generally lower than the employment indexes, it would appear that wage scales had declined to some extent. Further, the greater improvement show in the payrolls indexes than in the employment indexes in 1939 would seem to indicate an upward trend in wage scales. These indications are confirmed by Schedule 23, which shows the factory average weekly earnings for the United States, as computed by the National Industrial Conference Board, and the corresponding figures, as computed for the State of Illinois by the Illinois Department of Labor. Comparable figures for the Chicago industrial area were not available.

From the data referred to, indexes have been adjusted to the base period 1929-1931 in accordance with the method followed for factory employment and payrolls in the preceding schedule.

Now, Schedule 23 shows that the index of weekly earnings after 1930 declined considerably and reached its lowest level for the United States in 1932 at 66.4 percent and for the State of Illinois in 1933 at 68.7 percent of the 1929-1931 average. The indexes show gradual improvement thereafter, however, and for 1937 were above the 1929-1931 average both for the nation and the State of Illinois. In 1938 the indexes fell off to some extent but in 1939 (12 months ended July) the index for the United States rose to slightly above the 1929-1931 average, while for Illinois the index advanced to slightly less than the 1929-1931 average.

It is of interest to note that the dollar amounts of factory average weekly earnings shown in this schedule do not differ greatly as between the United States average and the Illinois average. In 1929, the average for the United States was $28.55, whereas for the State of Illinois it was $28.67. From 1929 to 1934 the Illinois average exceeded the United States average in each year, by amounts ranging from $0.12 in 1929 to $1.61 in 1932, the average difference

being approximately $0.80 in favor of the State of Illinois during those years. In 1935, 1936 and 1937, however, average weekly earnings for the United States were in excess of those for the State of Illinois. In 1938, Illinois' average weekly earnings exceeded those for the United States and in 1939 (seven months ended July) the position was reversed, the two figures in 1939 differing, however, by only $0.14.

1485 *Cross-Examination Interposed by Mr. Morgan.*

The average factory weekly earnings for the United States for the years 1930 and 1931, the years when defendants' pipelines were constructed, was $24.23. The average for the years 1938 and 1939 would be approximately $25.30. In 1938 the figure is $24.49; in 1939, $26.12. There would seem to be some slight increase there. For the State of Illinois, the average for 1930 and 1931 is $25.39, whereas for 1938 the figure is $25.07, and for 1939, $25.98, there being less difference in that case.

I am afraid I could not have gotten comparable figures for construction wages. The U. S. Bureau of Labor Statistics publishes a slightly more comprehensive index of factory average weekly earnings, but the disadvantage is that that index only starts in 1932 and it does not get us back far enough in time, and that is why I used this other index. It may be possible that the index computed by the National Industrial Conference Board is broken down, but I am not sure of that point, whether the detailed information is published or not. They undoubtedly have it, but I am not sure whether it is published.

Direct Examination by Mr. Slaff Resumed.

Passing now to Schedule 24, the fact that factory employment and payroll conditions in the Chicago industrial area were indicated as being somewhat less favorable than for the country as a whole led to an inquiry concerning the experience since 1929 of the companies which render utility services in the Chicago area.

For this inquiry, annual operating revenues for the period 1929-1938 of the three companies which render gas, electric and telephone service in Chicago were ascertained and are shown in Schedule 24. The companies are: Gas—The Peoples Gas Light and Coke Company; Electric—

Commonwealth Edison Company; Telephone—Illinois Bell Telephone Company.

The annual operating revenues of these companies have been reduced to indexes taking the 1929-1931 average of total operating revenues as equal to 100, in order to make those indexes again comparable with the preceding schedules.

It is indicated that for all three companies operating revenues declined after 1930, the index in each instance reaching its lowest level in 1933, at which point they were: The Peoples Gas Light and Coke Company—86.4; Commonwealth Edison Company—87.8; and Illinois Bell Telephone Company—79.7.

Revenues for all three companies recovered after 1933 and in 1937 were, in the same order, 104.4, 107.0, and 96.5. In 1938, however in contrast with the experience of industry generally, the indexes for both The Peoples Gas Light and Coke Company and Commonwealth Edison Company reached their highest levels for the entire period 1929-1938, being 106.8 and 112.4, respectively. In contrast, telephone revenues fell off slightly in 1938.

That completes the detail concerning the charts and schedules of Exhibit 185.

1486 I think it would be helpful to summarize my testimony, and in doing that it may be said that the period since 1929 has been attended by severe economic depression, and that this period has been characterized by declines in interest rates and return on money to about the lowest levels witnessed in this country since 1900.

The improvement in economic conditions during 1937 was followed by a recession in 1938. However, despite the gradual upturn in business which now appears to be in progress, interest rates and yields on investments have continued to decline and in August, 1939, were down to 1936 levels and even lower in some instances.

During the period since 1929, earnings of public utilities have shown a greater degree of stability than those of industrial and railroad corporations, which is an indication that public utilities, in general, are less subject to the risks confronting other forms of business enterprises.

And, finally, while there appears to be some lag in improvement in economic conditions in the Chicago industrial area and adjacent territory as reflected by indexes of factory employment and payrolls, as compared with the country as a whole, nevertheless, other indexes, such as

department store sales and average factory weekly earnings, seem to indicate that, in these respects, conditions are on about a par with the rest of the country. And, as has been shown, operating revenues of the gas, electric and telephone utilities serving the City of Chicago have reflected consistent improvement since 1933 to the extent that in 1938, although telephone revenues were slightly below the 1929-1931 average, revenues for the gas and electric utilities serving the City of Chicago were substantially in excess of their 1929-1931 averages.

Questions by the Examiner.

You ask what the social-economic significance of the department store index is. I would simply say department stores, of course, handle a great many varieties of merchandise, and any indexes relating to department store sales would naturally reflect a much wider scope of business activity and manufacturing, and would have greater implications than sales of just one variety of merchandise, such as paint, clothing, or something of that sort.

A department store index has wider applications than that of any single store whose variety of merchandise is very limited. I do not know that you can make that generalization that a department store index is a little more sensitive than the food, clothing and shelter indices. I think each one of those things is sensitive in itself, but by taking department store sales you get a variety. All of these sensitive figures are concentrated into one index largely.

Cross-Examination Interposed by Mr. Booth.

With respect to Schedule No. 24, under the caption "Commonwealth Edison Company" for the year 1938,
1487 the revenues are shown to be $92,926,649. I believe that includes revenues for the Super-Power Company of Illinois, which was taken over by the Edison Company and incorporated as part of its physical property either in that year or the previous year.

I might say here, though, that the figures for the Peoples Gas Light and Coke Company and the Commonwealth Edison Company are figures of the companies alone, without their subsidiaries, to the extent that figures in that direc-

tion were available, and if any figure for Super-Power Company is included in Commonwealth Edison it is only because there was no breakdown by which you could determine what the figures for the Super-Power Company were.

Cross-Examination Interposed by Mr. Morgan.

I prepared Exhibit No. 185. In some instances, of course, the actual work was done under my direct supervision. I kept up with it even though I utilized the services of my staff. There weree several employees whose assistance I obtained.

You ask why I started with 1929 instead of 1930. In making up these last several tables, they range from 1929 to 1939, inclusive, ordinarily. Speaking specifically of those last two schedules, 22 and 23, I think an examination of those schedules will indicate that 1929, as we all know, was the most prosperous year, at least from the standpoint of national income, that the country had experienced. Now it seemed to me that in building, and selecting the period to use as a base period, that if I had taken 1930 and 1931, or 1930, 1931 and 1932 as a base, the result would have been to make the indexes currently much more favorable than they actually are if we include 1929.

I meant to say we would be criticized for selecting indexes of this kind, two years of which were not very good years for business—the indexes here indicate that for 1930 and 1931 the index for the United States on factory employment, for exampie, was 100.2 and 84.7. Now if we had used 1930 and 1931 as an index, we would have arrived, in 1938 and 1939, at indexes much higher than 94 or 101, and I do not think that we should have used those years, because they did not include a sufficient period of time. It would seem to me to be fair that you should use a period which has some prosperity and some depression in it in order to try to get some normal basis upon which to build your indexes. No, we haven't any boom period in these last three years comparable to 1929.

While the pipeline under investigation happened to be built commencing in the middle of 1930, these indexes covered a period of time which is about the lowest length of time you can use in constructing an index. A 10-year period is considered to be about the minimum period which should be covered in an index. I think you have misunderstood me when I said that we would have gotten more

favorable results by omitting the 1929 index in our calculations. I did not mean more favorable from the standpoint of one side of this case or another. I mean if we had omitted 1929 from our indexes here, in the base period, that our indexes in 1937 and 1938 would have been much higher in per cent of the base period than they now are. It is just mathematical results.

Direct Examination by Mr. Slaff Resumed.

1488 Taking the Chicago industrial area column on Schedule 22 for 1931, we show an index figure of 82.1. For the 12 months ending August 31, 1939, we show an index figure of 82. If we had taken 1931 as 100, the 12 months ending August 31, 1939 would have been 100. So if we compare the index figures which we show for 1931 and the present time, we get the relative comparison, or the relative relationship that exists. If instead of taking 1931 as 100, I had taken 1931 as 1000, then the 12-months period ending August 31, 1939 would have been 1000. I do show, therefore, the relationship here between individual years, one with another. And the significance of those averages is not hidden. The figures are shown here for each of the years involved. If we took 1913 or 1915, or any year as the base period, and constructed an index from that point upon it, the relationship between given years would appear.

Questions by the Examiner.

If I were to recompute this table on the basis of, say, 1931, or, say, 1930, and just forget 1929, I do not see why it would not be possible to get the same relationship between years from those indices which I have there by scaling all of them up proportionately. The figure for each year would bear the same relation to any other year, no matter what year or period of years you take as a base period. In other words, the proportion of difference in the indexes between years does not change as the result of changing the base period. I have seen the 1929 base used in other instances. However, we find that commodity prices are on, as I recall it, a 1926 base, I think, and labor statistics are usually on a 1923 to 1925 base.

When I use the National Industrial Conference Board figures in this Schedule 23, that is not presented as the

National Industrial Conference Board setup. That has been revised. The National Industrial Conference Board revision date is mentioned in the footnote. I think I have the figure here. That Board's original figures are based on the three-year period 1927-1929. I know it is published, and I just merely have neglected to put it down.

(EXHIBIT 185 was offered and received in evidence without objection.)

Direct Examination by Mr. Slaff Resumed.

I have seen Exhibit 167 in this case, which is Exhibit 49 previously introduced by Mr. James A. Emery in the Chicago District *vs.* Lindheimer case on July 31, 1934. I have made a certain study in connection with that exhibit at Mr. Slaff's request. I attempted to bring that exhibit up to date. (Objection by Company Counsel overruled.) In bringing forward the issues listed in that exhibit, a search was made first in Moody's or Poor's Current Investment Manual, in order to determine whether the issues listed were still outstanding. This was followed by examination of successively earlier editions of the Investment Manuals until complete information was obtained, insofar as possible, with respect to the ultimate disposition of each of the issues shown in that exhibit, that is, whether the issue was permanently retired either through payment, reorganization, and so forth, or whether it was replaced by new issues as the result of refunding operations, 1489 or as the result of consolidations or mergers.

Having proceeded to the point I have just described, information was then obtained concerning new bond debenture and note financing by natural gas production and transmission companies, or by transmission and distribution companies, or by fully integrated companies during the period from January 1, 1933 to August 31, 1939, in order to project the data contained in Exhibit 167 forward into 1939. Care was taken to see that no duplication of issues was permitted to occur, inasmuch as certain issues replacing those contained in Exhibit 167 also, of course, appeared in the compilation of new issues during the period 1933 to 1939.

Exhibit No. 167 indicates that the overall weighted average yield to maturity to purchasers in 1934, on the basis of market prices at June 30, 1934, of the issues listed

in Exhibit 167, was 9.7 per cent. This weighted average is indicated as having been computed on the basis of adopting 15 per cent as the maximum yield to maturity on any individual issue.

Using the list of issues contained in Exhibit 167 projected into 1939 by the method previously described, the yield to maturity approximated to the nearest price quotation based on the average of bid and asked prices as of August 31, 1939, was computed for the individual issues. The overall weighted average of these yields was then computed as of August 31, 1939, based on the most recently available data as to principal amounts outstanding.

That over-all weighted average yield to maturity as of August 31, 1939, the closest date thereto, comes to 5.5 per cent as compared with the 9.7 per cent shown in Exhibit 167.

In that connection, I also took the issues of similar companies which were privately sold during the years 1933 to 1939 and added them in. I added those into the weighted average and got a new weighted average figure. Taking those new issues during the period 1933 to 1939 privately sold, and adding the yields to maturity based on offering price to purchasers, and weighting those issues in with the ones previously described, the resulting overall weighted average yield to maturity was determined to be 5.08 per cent.

At Mr. Slaff's request I also made some studies in connection with Exhibit 150, introduced in this case by Mr. Gilman. I determined the weighted average yield to maturity for all mortgage bonds of domestic electric and gas utility companies traded on the New York Curb September 15, 1939, as shown on pages 3 and 4 of Exhibit 150. That weighted average yield came to 4.69 per cent, as compared with the simple average yield of 5.12 per cent shown in Exhibit 150.

I also made a study of the mortgage bonds of domestic electric and gas utilities traded on the New York Stock Exchange on September 15, 1939. I obtained the weighted average yield to maturity of those bonds. On September 15, at September 15 prices, the weighted average yield to maturity of all electric and gas utility mortgage bonds traded in on the New York Stock Exchange was 3.63 per cent.

1490 The principal amount outstanding of the issues traded in on the New York Stock Exchange, as of

September 15, was $1,974,700,000. The comparable figure for the bonds shown on pages 3 and 4 of Mr. Gilman's Exhibit 150, was $1,299,410,000. The Stock Exchange list contains approximately 60 issues:

I then proceeded to weight the weighted average figure of 4.69, arrived at for the Curb bonds, with the weighted average figure of 3.63 which I arrived at for the Stock Exchange bonds, and the over-all weighted figure was 4.05 per cent.

At Mr. Slaff's request, I then eliminated from the Stock Exchange list of those companies having more than one issue outstanding, all issues except the one showing the highest yield. With that elimination the over-all weighted average of bonds traded on the New York Stock Exchange was 3.69 per cent. I then weighted that result with the weighted average of 4.69 for Curb bonds and got an over-all weighted average of 4.16 per cent.

I next made a compilation of preferred stocks of electric and gas companies listed on the New York Stock Exchange and traded in on September 15, 1939, of the same character dealt with on page 5 of Mr. Gilman's exhibit for the preferred stocks listed on the New York Curb Exchange. The weighted average yield for the preferred stocks shown on page 5 of Exhibit 150 came to 5.93 per cent as compared with the simple average of 6.4 per cent shown in Exhibit 150. The weighted average yield for the preferred stocks of electric and gas companies traded in on the New York Stock Exchange on the date last mentioned was 4.77 per cent. The combined weighted average yield for preferred stocks shown on page 5 of Exhibit 150 and those shown on the New York Stock Exchange list was 5.43 per cent. The total market price of the outstanding shares on the issues of preferred stock traded in on the New York Stock Exchange on September 15, 1939 was $510,346,144. The corresponding figure for preferred stocks traded in on the New York Curb Exchange shown on page 5 of Mr. Gilman's exhibit, was $672,213,463.

I have the working papers in connection with my testimony here and these working papers will be made available to counsel for the companies and for the Illinois Commerce Commission. These working papers do not show what the issues were as such; but they can be related to the various exhibits by a key system.

Cross-Examination by Mr. Morgan.

My working papers will be made available to Mr. Gilman in case he wants to check them. I have done no more with reference to this check on Exhibit 167 than I have testified to here. I have made no comparison to show the relationship between the percentage of total securities represented by bonds, preferred stocks and common stocks at the prsent time as compared with 1934.

I am not prepared to say what percentage of the total outstanding securities of natural gas companies at the present time is represented by bonds. I do not know the percentage with reference to the seven companies which the witness Emery testified about in connection with his Exhibit 167.

1491 I do not know whether the yields of preferred stock as compared with bonds, and the yields of common stock as compared with bonds, are in the same ratio as in 1934. I have made no study to determine that.

I have testified in only one other rate case. That is in the matter of Safe Harbor Water Power Corporation, Docket No. IT-5494, which was a hearing before the Federal Power Commission, conducted within the past month. I had never testified in any rate case prior to that time. I have had no articles published.

1492 CHARLES W. SMITH, a witness for the Federal Power Commission, testified:

(November 7, 1939.)

Direct Examination by Mr. Slaff.

My name is Charles W. Smith. I live at Halethorpe, Maryland. I am Chief of the Bureau of Accounts, Finance and Rates of the Federal Power Commission. On July 1, 1936, I became Chief of the Commission's Bureau of Finance and Accounts, and on February 2, 1938, the Division of Rates and Statistics was transferred to my jurisdiction and the name of the Bureau changed to that just indicated.

I have a B. S. degree in Finance and Business Administration and an LL.B. degree. I am a Certified Public Accountant of North Carolina and of Maryland, both by examination, the first being obtained about 17 years ago.

I am a past president of the Maryland Association of Certified Public Accountants, a member of the American Institute of Accountants, the American Accounting Association and the American Economic Association. I am also a member of the Maryland Bar. In addition, I am a member of the Committee on Public Utility Statistics and Accounts and the Special Committee on Depreciation of the National Association of Railroad and Utilities Commissioners. The latter association is composed of members of railroad public utility regulatory agencies.

As to experience, after working a few years in various capacities such as copy-boy for a newspaper, clerk and bookkeeper, I became, in 1920, an auditor in the Income Tax Unit of the U. S. Treasury Department, leaving that organization in 1929. About one-half of this time I was an office auditor specializing in consolidated returns, that is, joint returns of two or more companies, usually large companies, including public utilities. The remaining part of the time I was with the Income Tax Unit I was a field auditor and, in this capacity, I examined the books of practically every kind of business institution in Maryland, again including public utilities.

In 1929, as the result of obtaining the highest mark in a competitive examination, I was appointed Chief Auditor of the Public Service Commission of Maryland, which position I held until I accepted my present position. As Chief Auditor of the Public Service Commission of Maryland, I had all the experiences devolving upon the chief financial officer of an active regulatory commission. In that capacity I prepared many financial, accounting, economic, and rate studies and testified relative thereto before the Commission and occasionally before courts. My work with the Federal Power Commission is similar to that while with the Maryland Commission, except, of course, it is now on a national instead of a local scale.

I taught accounting in evening schools for about 10 years. During this time, I covered most accounting subjects. For eight years I taught accounting systems, and for two concurrent years, cost accounting at Johns Hopkins University. I have delivered a good many lectures and have written, somewhat, on financial accounting and economic subjects.

I have testified before relative to the rate of return of a public utility company.

1493 While I was with the Maryland Public Service

Commission, all matters appertaining to fair rate of return were under my supervision and I testified before the Commission in all cases in which rate of return was involved, and, in addition, I testified before the three judge court which heard the case of *C. & P. Telephone Company of Maryland* v. *West, et al.*, constituting the Public Service Commission.

Since I joined the staff of the Federal Power Commission, I have had supervision of matters appertaining to rate of return and have testified in two cases before the Commission. I have supervised the preparation of exhibits in all cases in which rate of return was involved since I joined the staff of the Federal Power Commission.

I supervised the preparation of a report entitled "Rate of Return Study, Part II," in Dockets G-109 and G-112, which you have just handed me.

(At this point, counsel for the Commission requested that the document just referred to by the witness be marked for identification. At the direction of the Examiner, the document was marked Exhibit 186 for identification.)

Cross-Examination Interposed by Mr. Morgan.

Exhibit 186 was prepared by members of my staff under my direction. That is the usual way of preparing this sort of material. Of course, I participated more actively in some of the exhibits than I did in others. I outlined the entire scheme of the exhibit, I told them just exactly what I wanted and how it was to be prepared. In some instances I partake in the preparation much more than others. That is, my directions are followed out by men who have made similar studies in the past. I rely on those working under me to obtain the facts and for mathematical accuracy particularly.

Direct Examination by Mr. Slaff Resumed.

In broad outline, the report is divided into two sections: the first section comprising Schedules 1 to 4 and Charts 1 to 3, inclusive, is designed to give a statistical picture of the natural gas industry in the United States, particularly by showing the volume of transactions during the last several years; the second section consisting of related Schedules 5, 5-A, 5-B, 5-C, 5-D, 5-E, 5-F, 5-G, 6, 7 and 8 and Chart 4, deals with certain financial aspects of natural

gas companies, particularly matters relating to the securities of such companies.

Schedule No. 1 shows certain revenue and customer statistics for the years 1929 to 1938, inclusive. The schedule is divided into three sections, the upper section dealing with revenues, the middle section relating to cubic feet of gas sold, and the lower section relating to customers.

It will be seen by scrutinizing the upper section that total revenues increased from $376,000,000, in round figures, in 1929 to $419,000,000, in round figures, in 1938, a substantial increase. During the depression years, the revenues from sales of gas were off, the low point being reached in 1933; then a general recovery set in and total sales in 1938 were the highest in the period portrayed, 1494 except for the year 1937. The year 1937 was generally a better business year than 1938, so that the decrease in sales in 1938 from 1937 conformed substantially to the general business trend.

The latest figures released by the American Gas Association show total revenues of $253,700,000, in round figures, for the six months ended June 30, 1939. This amount was 8.3 per cent above total revenues for the first six months of 1938, and 2.5 per cent above the like period of 1937.

The revenues from sales to domestic customers amounted to $223,000,000 in 1929 and $244,000,000 in 1938—again a substantial increase. The domestic sales followed the trend of total sales quite generally. Commercial sales, unlike domestic and total sales, did not decrease during the depth of the depression but instead steadily increased except for a rather minor decline in 1938. The total commercial sales were, in round figures, $32,000,000 in 1929 and $47,000,000 in 1938. As was to be expected, industrial sales fluctuated a great deal with the change in economic conditions. The sales of $117,800,000, in round figures, in 1929, decreased to a low of $74,100,000, in round figures, in 1932. There was a recovery, however, the high point being reached in 1937 when such sales amounted to $143,800,000. In 1938, industrial sales amounted to $125,000,000, being off from 1937 and slightly under the sales of 1936. Miscellaneous sales, I believe, need no explanation.

It will be noted that the annual revenue per thousand cubic feet of gas sales amounted to 38 cents in 1929 and 34.9 cents in 1938. The revenues per thousand cubic feet have varied somewhat from a high point of 41.1 cents in 1932 to a low of 33.7 cents in 1937. Under the heading

"Domestic," it will be seen that the average revenue per thousand cubic feet in 1929 amounted to 66.7 cents whereas in 1938, the corresponding revenue was 70 cents. The revenue per thousand cubic feet of gas sold under the category of commercial sales has generally declined from 1929 to 1938—the average revenue per thousand cubic feet was 55.5 cents in 1929, whereas the pertinent figure for 1938 was 47.6 cents. Industrial sales have varied from a high point of 20.1 cents in 1929 to 16 cents in 1934; the 1938 figure being 17 cents.

The middle section of that Schedule No. 1 shows the quantity of gas sold. The total sales in thousands of cubic feet for 1929 amounted to 991,000,000, the low point being reached in 1932 when 834,000,000 M. cubic feet were sold.

Thereafter, increased sales were reflected, the high point being reached in 1937, when 1,316,000,000 M. cubic feet were sold. The sales for 1938 amounted to 1,200,607,000 M.C.F. The sales to domestic consumers in 1929 amounted to 335,400,000 M.C.F. The low point for the period, 1933, reflected 300,200,000 M.C.F., after which the sales increased, reaching a high figure in 1937 of 360,200,000 M.C.F. The figure for 1938 was 349,200,000 M.C.F. The sales to commercial customers have increased very substantially in the period under review, the sales being 58,600,000 M.C.F. in 1929, 103,300,000 M.C.F. in 1937, and 99,800,000 M.C.F. in 1938. The sales to industrial customers amounted to 585,000,000 M.C.F. in 1929, after which they declined, reaching a low point of 427,000,000 M.C.F. in 1932, a high point of 836,000,000 M.C.F. in 1937, and 736,000,000 M.C.F. in 1938.

1495 The total sales per customer were 173.7 M.C.F. in 1929 and 170.7 M.C.F. in 1938—a slight decrease. During the interim, the sales decreased and then increased, reaching a high point in 1937 when the annual sales per customer were 191.9 M.C.F. The sales to domestic customers per customer generally declined from 1929 to 1938, although there was a slight increase from the low point of 52.4 M.C.F. in 1934 to 53.6 M.C.F. in 1938. The sales per commercial customer were 184.8 M.C.F. in 1929 and outside of a slight decline for 1930 and 1931 have increased, reaching a high point of 222.0 M.C.F. in 1937 and dropping off to 207.6 M.C.F. in 1938. The average annual sales per industrial customer in terms of volume have varied rather considerably, as would be expected. The sales amounted to 30,642.5 M.C.F. in 1929, reaching a low of 17,393.9 M.C.F.

in 1932, a recovery to 24,592 M.C.F. in 1936 and with average annual sales of 19,846 M.C.F. per industrial customer in 1938.

The lower section of the schedule contains statistics appertaining to average number of customers during each year of the period under review. The total number of customers has generally trended upward from 1929 to 1938, the number being 5,703,000 in 1929 and 7,033,700 in 1938. The average number of domestic customers has increased, the figure being 5,300,000 in 1929 and 6,500,000 in 1938. The number of commercial customers has followed the trend of the total and of domestic customers, the average being 317,000 in 1929 and 481,000 in 1938. The average number of industrial customers has likewise increased during the period from the low of 19,000 in 1929 to 37,000 in 1938. That is almost double.

The average annual revenue per customer for all customers for the year 1929 amounted to $65.97 and in 1938, $59.64, somewhat of a decrease. For domestic customers, the pertinent figure for 1929 was $41.65 and for 1938, $37.52, the 1938 figure still being under the 1929 amount. The average revenue per commercial customer was $102.64 in 1929 and $98.93 in 1938, a slight decrease. This slight decrease took place while the sales to commercial customers increased substantially in volume and, as shown in the top section of the schedule, was accompanied by a decrease in average revenue per M.C.F. The revenue per industrial customer has quite naturally fluctuated considerably, the figure being $6,170.00 in 1929 and $3,372.00 in 1938. Thus, while industrial sales have increased substantially in volume, there has likewise been a substantial increase in the number of customers, although, at the same time, the average revenue per M.C.F. for industrial customers has fallen from 20 cents in 1929 to 17 cents in 1938.

Cross-Examination Interposed by Mr. Morgan.

No, I do not realize that practically none of the gas that is sold by defendants was included in those figures. You are correct. The exhibit does not include the figures of companies who sell mixed gas. It is confined to companies which sell natural gas only.

Direct Examination by Mr. Slaff Resumed.

1496 I would like to state that the source of the information is generally given at the bottom of each schedule.

Schedule 2 shows the condensed income accounts of the natural gas industry for the years 1931 to 1937, inclusive. The revenues from sales to customers for each of the years from 1931 to 1937 are somewhat lower than the totals shown on Schedule 1, from which I would surmise that statistics for a few companies included in Schedule 1 are not included in Schedule 2. The differences, I might say, are relatively minor and do not affect the comparisons which are shown in Schedule 2.

I would like to call attention to items on Schedule 2. The first is net operating income which amounted to $111,264,000 in 1937, $109,108,000 in 1936, $93,050,000 in 1935, $71,029,000 in 1934, $64,840,000 in 1933, $76,092,000 in 1932 and $83,588,000 in 1931. It will be seen that the operating income in 1937 is higher than for any previous year shown in the schedule and is substantially higher than net operating income for 1931. The other item to which I would like to call attention is income available for dividends and surplus. Such income was $74,623,000 in 1937, $68,866,000 in 1936, $55,981,000 in 1935, $31,337,000 in 1934, $26,796,000 in 1933, $43,873,000 in 1932 and $50,816,000 in 1931. Again it will be seen that the net income available for dividends and surplus was substantially higher in 1937 than in 1931, and that 1937 was higher than any other year portrayed in the schedule. The amount of fixed capital is given for the years 1934 to 1937, inclusive, and it will be seen that the fixed capital increased about $83,000,000 between those years.

I would like to state that I do not have figures for years prior to 1931, and that is the reason I did not include them in this report. For fixed capital the figures that I have available go back only to 1934.

Both of these pages of the exhibit have to do with retail sales of distribution companies. The fixed capital figure is a figure for gross fixed capital.

Chart 1 shows in graphic form the monthly sales and revenues of the gas industry. The top lines on the left-hand side of the sheet show total revenues from both manufactured and natural gas industries by months for the years 1929, 1937 and 1938. The 1938 line is an un-

broken line. The 1937 line is a dotted line. The 1929 line is a dashed line.

It will be seen that the revenues for the three years mentioned clearly approximate each other. In the lower section on the same chart, revenues from the sale of manufactured gas for 1929, 1937 and 1938 are indicated. On the chart to the right are sales of natural gas in billions of cubic feet. Thereunder, the revenues for the natural gas industry are portrayed for the years 1929, 1937 and 1938. It will be seen that the business of natural gas companies is somewhat more seasonal than that of the manufactured gas companies and it will also be seen that the revenues from the natural gas business are somewhat higher than revenues from the sale of manufactured gas.

1497 Chart 2 has to do with distribution companies.

In this first section you have to consider the charts together in order to get a proper picture of the natural gas industry. You see you do not have quite the volume of statistics in the natural gas industry that I would like to have, chiefly because we haven't had the regulation of the interstate movement of natural gas. In a couple of years I am sure we will supply that need. I think you must consider all these charts together in order to get the proper picture. Chart 2 has been included in the exhibit for the purpose of giving some information as to the trend of sales in 1939. That chart shows the monthly revenues for 1938 broken down into classifications of total, domestic, industrial and commercial. The revenues up to July, 1939, are shown by the same classifications. It will be seen that the revenues for 1939 are higher than those for the year 1938.

Chart 3, which is taken from the Annual Statistics of The Natural Gas Industry in 1937, issued by the American Gas Association, compares natural gas sales with manufactured gas sales and industrial activity. The line portraying industrial activity is taken from the Standard Statistics index of industrial activity. All of the lines on the graph are chained together in 1926 which is taken as 100. It will be seen that the sales of natural gas have exceeded sales of manufactured gas since that date and that both the sales of natural gas and manufactured gas have not been accompanied by as great a decline as experienced by the industry in general during the depression years.

The caption on the chart, "Stability of the Gas Industry compared with General Industrial Activity," is the American Gas Association's caption.

I took that chart from the statistics for the year 1937 and carried it down to 1938. I would like to add that we have added the year 1938 in ink on the chart. It does not show it separately, but it has been added in ink from the publications of the American Gas Association. This chart is shown on page 4 of Exhibit 179, which is Statistical Bulletin No. 37, issued in October, 1939, by the American Gas Association.

It is my understanding that Charts 2 and 3 also have to do with gas distribution.

Schedule 3 shows natural gas production, consumption and transportation in the entire United States for the years 1926 to 1937, inclusive. On this schedule, column (b) shows the production; column (c) shows the consumption, which is exclusive of the gas used for field operations and manufacture of carbon black; column (d) shows the amount of gas transported in interstate commerce; column (e) shows the percentage of total consumption, transported in interstate commerce; and the final two columns show the total number of states in which gas was produced and consumed.

Here I am dealing with production and transmission of natural gas and not with distribution, as heretofore.

It will be seen from Schedule 3 that in 1937 approximately 48 per cent of the total natural gas consumed
1498 was transported in interstate commerce. Heretofore such transactions in interstate commerce have generally not been subject to regulation, but since the passage of the Natural Gas Act, this condition has been changed. The schedule shows very clearly the importance of natural gas as a commodity of interstate commerce.

I show the sources of the data at the bottom of the schedule.

I do not know offhand which two states in 1931 quit producing gas. There were 26 producing in 1929 and 1930 and since then only 24 have been producing gas.

Schedule 4 has been compiled for the purpose of showing the natural gas transported into the State of Illinois from other states. It shows that no gas was transported into the State of Illinois from other states in the year 1928; a relatively small amount from the State of Louisiana in 1929 and a substantial amount from Louisiana in

1930; in 1931 substantial amounts of gas were imported into Illinois from Texas and Louisiana; and in 1937, of a total of 77,610,000 M.C.F., 56,957,000 M.C.F. came from Texas, 17,367,000 M.C.F. from Louisiana, 2,973,000 M.C.F. from Kansas, and 313,000 M.C.F. from other states than those mentioned.

The sources of the data shown in Schedule 4 are given in the footnote.

Beginning with Schedule 5 of Exhibit 186, we show data relative to security issues of certain natural gas companies. The companies included in Schedule 5 were all the companies I could find which had the following characteristics:

(1) Were engaged in the production and transmission of natural gas; or

(2) Were engaged in the transmission of natural gas; and

(3) Had operating revenues in 1938 of $2,500,000 or more.

In taking those companies which had $2,500,000 revenue or more, my general purpose was to try to get companies which were somewhat comparable with the companies involved in the present proceeding, and the companies with annual revenues of less than $2,500,000 would not, in my opinion, be comparable. We did not pick and chose among the companies with revenues of $2,500,000 or more. We took all the companies which I could find which had the characteristics I have just mentioned. I mean they had to be engaged in production and transmission, or transmission by itself. They had to have those characteristics. They could have distribution, but they had to have transmission. They could have production as well.

I have not made any calculation as to the number of companies shown on this list which have more securities outstanding than Natural Gas Pipeline Company of America. I will do that before I return for cross-examination.

On Schedule 5 there are shown for each of the 31 companies having the characteristics previously described, the total amount of securities outstanding and the amount of those securities held respectively by the public, by institutions and by affiliates. By institutions, I mean
1499 banks, insurance companies, universities, etc. The information as to securities outstanding is as of the latest dates for which we could obtain the pertinent in-

formation. Some of the information is as of a recent time, some as of December 31, 1938, and, in a few instances, as of December 31, 1937.

On Schedule 5-A, there is given certain information relative to bonds, debentures and notes of the companies held by the public.

On Schedule 5-B are shown the holdings of bonds, debentures and notes of the companies by institutions.

On Schedule 5-C, the holdings of bonds, debentures and notes by affiliated interests are set forth.

On Schedule 5-D, certain information relative to public holdings of preferred stock of the companies is portrayed. That schedule will be explained subsequently.

Schedule 5-E shows the holdings of preferred stocks by affiliates.

Schedule 5-F shows market value and other data relative to common stocks held by the public, whereas Schedule 5-G shows the common stocks held by affiliates.

I would like to state that Schedules 5-A to 5-G, inclusive, are tied in with and, in a sense, support Schedule No. 5. As to Schedule No. 5 itself, the sources of information are not disclosed, because the sources were varied. We have work papers supporting the information, which will be gladly made available.

(EXHIBIT 156 for identification, received in evidence, subject to counsel for complainant supplying a properly certified copy in lieu of the document admitted. Motions to strike Exhibits 141 and 142 by Commission counsel denied.)

(EXHIBIT 184 for identification, offered and received in evidence.)

I have prepared in narrative form a statement with respect to each of the companies shown in Schedule 5 and have handed that statement to the reporter with the request that it be incorporated in the record as my statement with respect to that schedule.

(At this point the Examiner directed the reporter to copy into the record, from the typewritten document handed the latter by the witness, pages 15 to 30, inclusive, and the first half of page 31. The statement follows:)

1500 The Arkansas-Louisiana Gas Company is engaged in the production, transmission and distribution of natural gas. Its sources of supply are Monroe, Richland and Elm Grove fields in Louisiana and certain other fields in Texas and Arkansas.

The company supplies natural gas to a larger number of communities in Arkansas, Louisiana, and Texas. The principal communities served at retail are Little Rock, Arkansas, Shreveport, Louisiana, and Texarkana, Texas. Gas is sold at wholesale to, among others, Consumers Gas Company for distribution in the City of Hot Springs, Arkansas, and to other companies for distribution in two smaller communities in Arkansas.

The company has 1,371 miles of transmission lines and has about 10 compressor stations with an aggregate rated capacity of 26,390 h.p. The First Mortgage, 2¾% 1940-1944 bonds in the amount of $3,300,000 were held, it is indicated by page 1 of Schedule 5, by institutions. Referring to page 1 of Schedule 5-B, it will be seen that the $3,300,000 First Mortgage bonds just mentioned are held by the Guaranty Trust Company of New York and by the Central Hanover Bank & Trust Company, the former owning $2,800,000 of the bonds and the latter, $500,000 thereof. The First Mortgage, 3½% 1945-1954 bonds in the amount of $9,700,000 were also owned by institutions, as is indicated by Schedule 5, and Schedule 5-B shows that the entire issue was owned by the following institutions in the amounts indicated:

Equitable Life Assurance Society of U. S.	$4,850,000
Metropolitan Life Insurance Company	3,550,000
Massachusetts Mutual Life Ins. Company	400,000
Sun Life Assurance Co. of Canada	350,000
Teachers Ins. & Annuity Assoc. of America	300,000
Provident Mutual Ins. Co. of Philadelphia	250,000
	$9,700,000

The $6,500,000 of Debentures shown on Schedule 5 were all held by the Arkansas Natural Gas Corporation as is shown on page 1 of Schedule 5-C. Common stock of the company outstanding was 298,988 shares of a par value of $50 each or an aggregate book amount of $14,949,400. All of the common stock was held by affiliates and Schedule 5-G indicates that the entire issue in question was owned by the Arkansas Natural Gas Corporation.

The next company is the Canadian River Gas Company. That company is engaged in the production and transmission of natural gas. Its source of supply is the Texas Panhandle field, and its main line extends from that field to a point near Clayton, New Mexico. As has been shown by testimony in this proceeding, the Canadian River Gas

Company supplies 25% of the gas requirements of the Natural Gas Pipeline Company of America. The company owned 98 miles of trunk lines of various sizes at the end of 1938. The first Mortgage 6% Bonds in the amount of $6,244,000 of the Canadian River Gas Company are all owned by the Colorado Interstate Gas Company, as shown by page 1 of Schedule 5-C. The entire common stock of the company, having book amount of one dollar, was owned by the Southwestern Development Company, as is shown by Schedule 5-G.

1501 Chicago District Pipeline Company. This company is engaged in the purchase, transmission and sale of natural gas. Its gas transmission system appears to consist of approximately 43 miles of 24-inch pipeline from Joliet, Illinois, to a point of connection with one of the Peoples Gas Light & Coke Company's transmission mains on the southern limits of the City of Chicago; approximately 1.3 miles of 20-inch pipeline from the company's 24-inch system to a point on the Illinois-Indiana State line; approximately 31 miles of 24-inch pipeline and 4 miles of 20-inch pipeline forming a connection with one of the Peoples Gas Light & Coke Company's transmission mains on the western limits of the City of Chicago. I believe it has been shown by testimony in this proceeding that the Chicago District Pipeline Company purchases its gas requirements from the Natural Gas Pipeline Company of America. The largest sales by the Chicago District Pipeline Company are to the Peoples Gas Light & Coke Company. The notes payable of the company in the amount of $2,769,897 were owned by the Natural Gas Investment Company, as shown by Schedule 5-C. The common stock, consisting of 1,000 shares of no par value, with book amount of $10,000, was all held by the Natural Gas Investment Company, as indicated by Schedule 5-G.

Cities Service Gas Company. This company is engaged in the production and transmission of natural gas. It obtains its gas from a number of fields in Texas, Oklahoma, and Kansas, including particularly, the Panhandle field in Texas and the Oklahoma City and Seminole fields in Oklahoma. The company's system consists of 4,273 miles of pipeline and 29 compressor stations. Gas is sold at wholesale to distributing companies serving 229 communities, including Kansas City, St. Joseph, Springfield, and Independence, Missouri; Bartlesville, Oklahoma, and Kansas City, Leavenworth, Topeka and Wichita, Kansas.

The company has outstanding First Mortgage 3¼% and 3¾% bonds due 1940-1954 in the amount of $35,000,000 all of which bonds are held by institutions, as shown on page 1 of Schedule 5-B. $20,000,000, consisting of 3¾% bonds, are owned outright by four banks and two insurance companies, and the remaining $15,000,000, 3¼% bonds, are held as collateral for loans. The $8,000,000, Debentures, 5½%, 1956, are held by the Cities Service Company and subsidiaries, as shown by Schedule 5-C. The common stock of the company consisting of 300,000 shares of no par value is all held by the Empire Gas & Fuel Company, as shown by Schedule 5-G. The Empire Gas & Fuel Company, I might state, is owned 100% by Cities Service Company and certain of its subsidiaries.

Colorado Interstate Gas Company. The Colorado Interstate Gas Company is engaged in the transmission of natural gas. The main transmission system of the company extends from a point near Clayton, New Mexico, to Denver, Colorado, a distance of 254 miles. The company also has 165 miles of branch lines connecting with the main system at different points along the line. The company acquires its gas from the Canadian River Gas Company, described heretofore. The First and Collateral Trust, 3½%'s, 1948, in the amount of $10,898,000 were held partly by institutions and partly by affiliates. As shown on Schedule 5-B, the Mutual Life Insurance Company of New York owned $4,865,000 of such bonds and, as shown on Schedule 5-C, the Imperial Oil Ltd. and Standard Oil Company of New Jersey owned $6,033,000 of the bonds outstanding. Of the preferred stock of the company consisting of 6% par value $100, $2,000,000 in amount, the entire issue was owned by the Standard Oil Company of New Jersey and Consolidated Oil Corporation in 1502 equal amounts, as is shown by Schedule 5-E. The common stock of the company consisting of 1,250,000 shares of no par value was owned by the following companies in the proportions indicated, as is shown by Schedule 5-G:

Southwestern Development Company	42½%
Standard Oil Company of New Jersey	42½%
Public Service Company of Colorado	15%

East Ohio Gas Company. This company is engaged in the production, purchase, transmission and distribution of natural gas. The company supplies the gas requirements in Cleveland and in many other cities and towns in east-

ern and northern Ohio. It has over 6,000 miles of pipeline. The preferred stock of the East Ohio Gas Company is owned by the Standard Oil Company of New Jersey, as is shown by Schedule 5-E, and the common stock is all owned by the same company, as is indicated by Schedule 5-G.

The El Paso Natural Gas Company is an operating and holding company. It purchases gas from producers in southeastern New Mexico. The company and its subsidiaries are engaged in the business of purchasing natural gas from producers in New Mexico, transmitting it through a pipeline system and selling it at wholesale to public utility and industrial customers located principally in or near El Paso, Texas; Hurley, New Mexico; Phoenix, Arizona; etc. The pipelines of the company and its subsidiaries consist of 1,331 miles, including duplicate lines, branch lines and gathering lines. The First Mortgage, 3½% bonds of the company in the amount of $6,000,000 are held by the following institutions, as is shown by page 1 of Schedule 5-B.

Sun Life Assurance Co. of Canada	$ 891,102
Equitable Life Assurance Society of U. S.	2,250,000
Massachusetts Mutual Life Ins. Co.	275,000
Metropolitan Life Ins. Co.	2,000,000
Mutual Life Ins. Co. of New York	475,000
	108,898
	$6,000,000

The serial notes in the amount of $3,480,000 were all owned by The Chase National Bank, likewise as is shown by Schedule 5-B. All of the preferred stock of the company, consisting of 7% Cumulative, par value $100, was owned by the public and the common stock of the company was likewise held by the public.

Equitable Gas Company. This company is engaged in the production, purchase, transmission and distribution of natural gas. The company's production properties are in western Pennsylvania, but the major portion of its natural gas is obtained from the parent company, Pittsburgh & West Virginia Gas Company, which in turn obtains gas from West Virginia and eastern Kentucky. The company produces, transports, and distributes natural gas in the western part of Pennsylvania, including particularly Pittsburgh and cities in the vicinity. The notes of the company outstanding in the amount of $13,540,408 are

all held by affiliated companies. The common stock of the company was held by Pittsburgh & West Virginia Gas Company.

The Hope Natural Gas Company is engaged in the production, purchase, transmission and distribution of natural gas. It is one of the oldest and most important
1503 gas subsidiaries of the Standard Oil Company of New Jersey in the Appalachian field. The company's operations are confined to the State of West Virginia, but its main outlet are sales to the East Ohio Gas Company which operates in the State of Ohio, and to the Peoples Natural Gas Company which operates in the State of Pennsylvania, both of which companies are likewise subsidiaries of the Standard Oil Company of New Jersey. The only security outstanding of the Hope Natural Gas Company was common stock, all of which was owned by the Standard Oil Company of New Jersey.

The Houston Gulf Gas Company is engaged in the production, purchase, transmission and wholesale distribution of natural gas. The principal producing properties of the company are located in south Texas. The main pipelines extend from the field in south Texas to Houston, Texas, and industrial areas in that vicinity. Pipelines of the company aggregate 482 miles. The company sells at wholesale substantially all requirements of about 18 communities in southern Texas. The company is also engaged in the production, transportation and sale of a limited amount of crude oil. The bonds and debentures of the company, as shown by Schedule 5, were largely held by the public. The notes were held by an affiliate, United Gas Pipe Line Company, as shown by Schedule 5-C. The preferred stocks were largely held by an affiliate, United Gas Corporation. Most of the common stock of the company was held by the United Gas Pipe Line Company, as shown by Schedule 5-G.

The Indian Territory Illuminating Oil Company is engaged in the production of oil and natural gas and the transmission of natural gas, and is an operating as well as a holding company. The transmission lines of the company connect with other subsidiaries of the Cities Service Company. Its outstanding notes were held by affiliates and by a bank, and some of its common stock was held by the public, although the majority was held by Cities Service Company, and Empire Gas & Fuel Company, as shown by Schedule 5-G.

The next company is Interstate Natural Gas Company, Inc., whose securities outstanding consisted of common stock, some of which was held by the public but most of which, however, was held by Standard Oil Company of New Jersey and the Columbian Carbon Company, as indicated by Schedule 5-G. The Interstate Natural Gas Company, Inc., owns 170 miles of main pipeline, 22 inches in diameter, running from the Monroe gas field in northern Louisiana to Baton Rouge, Louisiana. It serves at wholesale companies supplying natural gas to Natchez and Baton Rouge, and it connects at Baton Rouge with a pipeline of the United Gas Pipe Line Company, which supplies gas to the City of New Orleans.

The Iroquois Gas Corporation is engaged in the production, purchase, transportation and distribution of natural gas and manufactured gas. The company's operations are confined to the western part of New York State. The company's outstanding securities, consisting wholly of common stock, were all held by National Fuel Gas Company, as is shown by Schedule 5-G.

The Lone Star Gas Company is engaged in the production, purchase, and distribution of natural gas and also, somewhat, in the production of crude oil. Its transmission lines are in two service groups—(1) a main group extending from the southeastern extremity of the Texas Pan-
1504 handle to Fort Worth and Dallas, where it connects with transmission and distribution lines which extend through the central part of Texas and southern Oklahoma. The company distributes gas directly in Fort Worth. (2) The secondary groups extends in a southwesterly direction from Brownwood, Texas, to San Angelo, Texas, etc. The company owns 4,384 miles of mains and field lines and 21 compressor stations. The company has outstanding mortgage notes in the amount of $214,100, all of which were held by the public, and 4½% notes, 1953, in the amount of $19,600,000 which were held by the Lone Star Gas Corporation, parent company, as shown by Schedule 5-C. All of the company's outstanding common stock was held by the same parent company, as indicated by Schedule 5-G.

The Manufacturers Light and Heat Company is engaged in the production, purchase, transmission and distribution of natural gas. The company distributes gas in western Pennsylvania, northern West Virginia, and eastern Ohio. Important cities in which the company distributes gas in-

clude Pittsburgh, New Castle and Washington, Pennsylvania; Steubenville and East Liverpool, Ohio; and Moundsville, West Virginia. It obtains its supply in southwestern Pennsylvania, West Virginia and Ohio. The company's notes payable of $360,000 and practically all of the common stock having a book value of $22,530,400 is held by Columbia Gas & Electric Corporation.

The Memphis Natural Gas Company is engaged in the purchase and transmission of natural gas. The company's main pipeline extends from the Monroe field in Louisiana to Memphis, Tennessee, a distance of 402 miles. All of the notes of the company were held by institutions and somewhat more than half of the common stock of the company was held by the public while the remainder was held by affiliates.

Unless there is some objection, or unless some question arises concerning a particular company, from now on I will not describe the institutional or the affiliated holders of the securities of the various companies. Such information is shown in detail in Schedules 5-B, 5-C, 5-E and 5-G.

The Mississippi River Fuel Corporation is engaged in the transmission of natural gas. The company owns and operates 450 miles of main pipeline from Louisiana to St. Louis, Missouri, together with main compressor stations and branch pipelines incidental to the delivery of natural gas to industrial consumers and to distributors to communities along the route. All of the first mortgage bonds of the company were held by institutions. The 6%, 1940, notes were held by affiliates and all the common stock was held by affiliates.

The Mountain Fuel Supply Company is engaged in the production, transmission and sale of natural gas. The company's sources of supply are chiefly in Colorado, Utah and Wyoming, and it has 530 miles of transmission lines. Principal cities served by the company are Salt Lake City and Ogden, Utah. The common stock of the company outstanding was of the book amount of $19,899,025, $15,090,455 of which was owned by the public and the balance by affiliates.

The Natural Gas Pipeline Company of America is one of the companies involved in the present proceeding, and I believe an adequate description of its facilities is included in the record; suffice it to say at this time that the company's bonds and stocks are all owned by affiliates.

1505 The Northern Natural Gas Company is engaged in the production, purchase, transmission and distribution of natural gas. The company and subsidiaries own and operate approximately 2,200 miles of natural gas transmission lines, extending from the Texas Panhandle and Hugoton, Kansas, fields to South Dakota and Minnesota. The main transmission lines are largely 24 inches in diameter. Natural gas is sold principally at wholesale in Iowa, Kansas, Nebraska, South Dakota, and Minnesota. Cities supplied at wholesale include Omaha and Lincoln, Nebraska; Council Bluffs, Des Moines, Sioux City, Mason City and Fort Dodge, Iowa; Sioux Falls, South Dakota; and Minneapolis and Rochester, Minnesota. The First Mortgage, 3¼%, 1954, bonds of the company were all held by institutions. The bonds were sold to the institutions in August of this year. The common stock of the company was all held by three affiliates.

The Ohio Fuel Gas Company is engaged in the production, transmission and distribution of natural gas. The company has the most extensive gathering, transmission and distribution system in the State of Ohio. It supplies some 300 cities and towns in that State. The 4% notes, 1940-1946, were held by institutions and other notes aggregating $6,734,363 were held by affiliates. All of the common stock of the company was likewise held by an affiliate, Columbia Gas & Electric Corporation.

The Oklahoma Natural Gas Company is engaged in the production, transmission and distribution of natural gas. The company has 2,182 miles of pipeline. It obtains its supply of gas in Oklahoma, and ⅓ of the business of the company in terms of volume of gas sold is in Tulsa and vicinity and another ⅓ in Oklahoma City and vicinity. The First Mortgage 3¼%, 1955, bonds of the company were all held by the public and were issued in August of this year. There were also outstanding bank loans in the amount of $8,000,000, which were held by institutions. The two issues of preferred stock were held by the public and the common stock was likewise held by the public. The stock of the company was formerly owned by the Gas Utilities Company, which company was dissolved in 1936, and the common stock of the Oklahoma Natural Gas Company was distributed to approximately 2,500 stockholders of the Gas Utilities Company.

The Panhandle Eastern Pipe Line Company is engaged in the production, transmission and distribution of

natural gas. The company owns a natural gas transmission system extending from the Amarillo gas field in the Texas Panhandle through Oklahoma, Kansas, Missouri and Illinois to a point near Dana, Indiana, adjacent to the Illinois-Indiana State line. The major portion of the gas transmitted is sold at wholesale to other gas transmission and distributing companies, the balance is sold to industrial consumers. The principal distributing company served is the Michigan Consolidated Gas Company which supplies gas to customers in Detroit, Michigan, and vicinity. The company's transmission system consists of approximately 2,100 miles of pipeline. The First Mortgage, 4%, 1952, bonds of the company are owned in part by the public, but largely by institutions. The bonds were issued in March, 1937. There was outstanding bank loans in the amount of $2,000,000. The preferred stock, both Series A and Series B, was all held by the Columbia Oil & Gasoline Corporation, and the common stock was held by the Columbia Oil & Gasoline Corporation and by the Missouri-Kansas Pipe Line Company.

1506 The South Penn Oil Company is engaged in the production of oil and natural gas. The chief sources of supply are Pennsylvania, New York, West Virginia and Kentucky. The only securities outstanding consisted of common stock, book amount of $25,000,000, of which $20,681,425 was owned by the public and the balance by affiliates.

The Southern California Gas Company is engaged in the purchasing, transmission and distribution of natural gas. The company purchases natural gas in California and transports and distributes natural gas to various customers in Los Angeles, San Bernardino, Fresno and other counties in California. The major part of the company's revenue is derived from the distribution and sale of natural gas to domestic customers. About ⅔ of the First Mortgage, 4% 1965, and First Mortgage, 4½%, 1961, bonds of the company outstanding, were held by the public and ⅓ of each issue held by institutions. About ¾ of the 6% preferred stock, par value $25, was held by the public and ¼ by affiliates, whereas all of the 6%, Series A, par value $25, was held by the public. The common stock was all held by the Pacific Lighting Corporation.

The Southern Counties Gas Company of California is engaged in the transmission and distribution of natural gas. The company purchases its gas in California and

distributes gas to about 98 cities and towns in that state. The company has about 230 miles of transmission line. Of the First Mortgage, 4½%, 1968, bonds outstanding, $9,432,860 were in the hands of the public, whereas $2,067,140 are held by institutions. All of the common stock was held by the Pacific Lighting Corporation.

The Southern Natural Gas Company is engaged in the transmission of natural gas. The company purchases gas under long term contract from the Monroe and Richland fields in Louisiana and transports gas from those fields to markets in Mississippi, Alabama and Georgia. The main line extends eastward to Atlanta, Georgia, approximately 504 miles. Gas is sold chiefly to 12 distributing companies. The First Mortgage, 4½%, 1951, bonds were held almost equally by the public and by institutions. The First Mortgage, 4½% 1952, bonds were all held by institutions. The Adjustment Mortgage bonds of 1960 were held by the public and affiliates and notes in the amount of $1,475,000 were held by banks. Of the common stock of the book amount of $5,189,776, $2,698,667 was in the hands of the public and the balance owned by affiliates. The Adjustment Mortgage bonds were issued in 1936, pursuant to a reorganization plan to holders of predecessor company's convertible 6% debentures, 1944, and to holders of filed and allowed claims on the basis of $500 of the new adjustment bonds, plus 48 shares of new Class A stock, for each $1,000 principal amount of old debentures and each $1,000 of claims. The Class A stock together with Class B stock was subsequently converted into the presently outstanding common stock.

The Texoma Natural Gas Company is one of the companies involved in the present proceeding and all of the securities of the company, as already shown in the record, are owned by affiliates.

1507 The United Fuel Gas Company is engaged in the production, transmission and distribution of natural gas. The company's production operations are carried on in West Virginia and it supplies natural gas to many communities in that state as well as in southeastern Ohio. The 4% notes of the company, 1940-1946, in the amount of $5,250,000 were all held by institutions and other notes aggregating slightly in excess of $13,000,000 were held by the Columbia Gas & Electric Corporation and all of the common stock was held by the same company.

The United Gas Pipe Line Company is engaged in the purchase, and transmission of natural gas. Gas is pur-

chased principally at the wells in Texas, Louisiana and Mississippi, and is gathered and transported for sale to distributing systems of United Gas Corporation, to industrial corporations, and to others. The company owns 4,743 miles of pipeline in Texas, Louisiana, Mississippi, Alabama and Florida. The company, therefore, has long pipelines serving a very wide territory. All of the outstanding securities of the company were held by affiliates, the debentures and common stock being owned by the United Gas Corporation, and the bonds being held by Electric Bond & Share Company.

The United Natural Gas Company obtains its supply from northwestern Pennsylvania and supplies gas to several towns in Pennsylvania and a large quantity of gas is sold to Iroquois Gas Corporation, an affiliated company, for distribution in western New York. The only security the company had outstanding was common stock, all of which was held by the National Fuel Gas Company.

The summary on page 6 of Schedule 5 discloses that of a total of $418,882,597 of bonds, debentures and notes outstanding of the 31 companies which I have just described, $65,668,459 was in the hands of the public, $153,572,164 was owned by institutions, and the balance, $199,641,974, was owned by affiliates.

The preferred stock outstanding was $60,713,200, of which $34,381,900 was owned by the public, and the balance by affiliates. Of the common stock outstanding, somewhat less than 10%, namely, $54,848,338, was held by the public, and the balance, $503,806,766, was held by affiliates. Of the total securities outstanding, aggregating a book amount of $1,038,250,901, $154,898,697 was in the hands of the public, $153,572,164 owned by institutions, and $729,780,040 owned by affiliates.

The outstanding characteristic of security issues is the large amount of securities owned by affiliated companies in comparison with the small amount owned by the public and institutions. This leads, naturally, to the conclusion that great care must be exercised in selecting samples for the purpose of disclosing what is proper cost of money to any natural gas company in connection with rate of return studies. It will be seen from the summary of Schedule 5 that a fair sample of bonds outstanding can probably be had. Preferred stock outstanding, however, is very minor in amount, being approximately 6% of the total of outstanding securities, and only one-half of this amount is

held by the public. When it comes to common stock, the amount outstanding in the hands of the public is so small that erroneous conclusions may easily be drawn from a study of such a meager sample. I would like to reiterate, that the companies included in the study are not hand-picked but are all the companies I could find with the characteristics which I have previously mentioned.

1508 *Cross-Examination Interposed by Mr. Morgan.*

By "affiliates" as I used that term on page 6, Schedule 5, I mean corporate stockholders. Of course, some of the bonds held by institutions are held by corporate stockholders, but I mean a broader sense than that. I mean what we ordinarily have in mind by affiliated companies. Affiliated companies is not a term which can be exactly defined. It is defined differently in many statutes but I use the term in the broad sense of being an affiliated company.

I assumed that Columbian Carbon Company, for instance, was an affiliate of Natural Gas Pipeline Company. Columbian Carbon Company owns 2 percent of the stock in the Pipeline Company and also owns a million dollars of bonds of the Pipeline Company. When you consider the historical development of the Pipeline Company, I think you would naturally conclude that Columbian Carbon Company is an affiliated company.

Your suggestion that whenever I find another company owning part of the stock of the company under consideration I have called it an affiliate, is not altogether accurate. Generally, they are gas companies and, generally, if they own a sufficient amount I would consider them affiliated companies. Some of the institutions are likewise corporations but we would not classify those as affiliates. The term "affiliates" is not necessarily confined to gas companies. I think the reading of the list will pretty well explain for itself the list of affiliated companies. One of the reasons we set forth the security holdings in great detail was for the very purpose of showing the degree of affiliation. For instance, Colorado Interstate Gas Company which is shown in Schedule 5-E, the preferred stocks were held 50 percent by Standard Oil Company of New Jersey.

Direct Examination by Mr. Slaff Resumed.

I show in detail the name of each company which I set out as an affiliate with respect to the bonds, debentures and notes of natural gas companies, and the preferred and common stocks of natural gas companies. Those are more specifically shown in detail in Schedules 5-C, 5-E, and 5-G.

In 5-G we also show percentages of ownership of outstanding stocks. Now, you will find in many cases that the percent of ownership is very large, 100 percent in a great many cases. I will repeat, I have used the term in a general sense and not with any exact definition in mind.

Cross-Examination Interposed by Mr. Morgan.

I have had a good deal of experience in trying to define the word "affiliates." When the system of accounts was being drafted I spent days in trying to get a definition which would meet the views of many state accountants. The job was so difficult that we finally defined associated companies and did away with affiliated companies. I am using this term in a broad sense in this report. I realize the difficulties of trying to have an exact definition of what is meant by affiliated companies.

Question by the Examiner.

1509 No, I do not show the dates on which the issues were floated in connection with the holdings by affiliates and the public of preferred and common stock. I do not know how we could get that information. It is difficult to get proper information for the natural gas industry. We have been able to obtain holdings of securities by the public, institutions, and what I term affiliates, from public sources, but you will find by reference to the footnotes in the various schedules that the public sources are varied. You can't find the information at any one place.

Direct Examination Resumed by Mr. Slaff.

Schedule 5-A gives certain financial information relative to the bonds, debentures and notes shown on page 6 of Schedule 5, which securities were held by the public. There are given in that schedule the name of the issuing com-

pany, description of the issue, total amount of issue outstanding, amount held by the public, and the total of the amount held by the public will agree with the pertinent figure on page 6 of Schedule 5,—the ratings of Moody's and of Poor's, the times fixed charges earned for 1938, percent of funded debt, to total fixed capital as of December 31, 1938, the high and low quotations for 1937 and 1938, together with the closing price of the latest date available when the schedule was prepared, and, finally, the yield to maturity on the basis of the last quotation, which is contained in the last column on the page.

It will be seen—referring now to the figures in the last column—that the Houston Gulf Gas Company's First and Collateral, 6%'s, were selling on a basis of 5.13% yield to maturity. It should be noted that the quotation was 103½ although the call price was 101½ on September 30, 1939, and it is well known that under such circumstances, the yield to maturity is not a correct portrayal of the proper yield. In other words, when the call price is higher than market, it is well established that the call price is probably holding down the market value.

The Houston Gulf Gas Company's debentures, 6½%, 1943, were selling on a basis of 5.90 as of September 30, 1939. Here again the quotation was 102 whereas the call price was 101½.

No information is available as to the market quotation of the Lone Star Gas Company's mortgage note.

The Oklahoma Natural Gas Company's First Mortgage 3¾%, 1955, was selling on a 3.55% basis to maturity as of September 30, 1939. Incidentally, this issue was sold in August of this year.

The Panhandle Eastern Pipe Line Company's First Mortgage, 4½%, was selling on a basis of 3.63% as of September 30, 1939, and here again the quotation of 103⅞ exceeded the call price of 102½.

The Southern California Gas Company's First Mortgage, 4%'s, 1965, were selling on a basis of 3.70% as of September 30, 1939, and the Southern California Gas Company's First Mortgage, 4½%'s, 1961, were selling on a basis of 4.00% as of the same date. The difference between the yield to maturity on the 4's and 4½'s of the Southern California Gas Company is clearly attributable to the call provisions of the respective issues. The 4's were selling at 105⅜ whereas the call price was 107½, while on the other hand, the 4½'s were selling at 107½ whereas the call price was 104.

1510 The Southern Counties Gas Company of California's First Mortgage, 4½%'s were selling at 4.20% as of October 3, 1939. Once more the market price of 104⅜ exceeded the call price of 101½.

The Southern Natural Gas Company's First Mortgage, 4½%, 1951, bonds were selling at 3.90% and the market price and the call price were equal at 105. The Southern Natural Gas Company's Adjustment Mortgage, 6% bonds, 1960, were selling on October 3 at a yield to maturity of 6.35%.

The weighted average yield on those bonds for which a figure is given in the last column, that is to say the column headed "Approximate Yield to Maturity," was 4.02%. These bonds which I have discussed and which are shown in Schedule 5-A, are the bonds in the amount of $65,668,459 set out on page 6, Schedule 5, that is the bonds, debentures and notes, stated there to be held by the public.

I have explained Schedules 5-B and 5-C in my earlier statement with respect to this exhibit.

Schedule 5-D supports Schedule 5 in that it shows certain information relative to preferred stocks of natural gas companies listed on Schedule 5, and which preferred stocks are held by the public.

Schedule 5-D shows the issuing company, a description of the issue, total amount of each issue outstanding, amount held by the public, Poor's rating, the times dividend requirements earned, the times fixed charges and dividends earned in 1938, the high and low quotations in 1937 and 1938, the latest available quotation we could get at the time the schedule was prepared, and the current yield based upon such 1939 quotations.

While all the information on Schedule 5-D is of interest, I would like to discuss particularly the current yields, that is, the figures in the last column.

The El Paso Natural Gas Company's 7% cumulative preferred stock, par $100, had a yield on September 30, 1939, of 6.48%. We could obtain no market quotations on the two issues of preferred stock of the Houston Gulf Gas Company. Only a very small amount of that stock was held by the public.

The Oklahoma Natural Gas Company's $5.50 preferred stock had a yield on September 30 of 5.26%, whereas the same company's $3.00 preferred stock had a yield on September 30, 1939, of 7.10%.

I would like to call attention to the fact that the Oklahoma Natural Gas Company has a very large amount of funded debt and preferred outstanding, so that the second preferred, the $3.00 preferred, ranks more in the class of common stock than the genuine preferred stock. The total securities of that company are shown on page 4 of Schedule 5.

I believe the bonds, debentures, notes and preferred stock, aggregate 70 per cent of the company's capitalization; that is, the prior preferred stock.

1511 The Southern California Gas Company's 6% cumulative preferred stock had a yield based on market price of September 30, 1939, of 5.00%, whereas the 6% cumulative preferred, Series A, had a yield of 4.96% as of the same date. It will be seen that the weighted average yield on the securities for which a yield is given in the last column, that is to say, the column headed "Current Yield" is 5.35%.

I have previously discussed Schedule 5-E, which shows the holdings by affiliated companies of preferred stocks.

In Schedule 5-F, there is given certain pertinent information relative to the common stock issues of 10 of the 31 companies heretofore mentioned. The stocks of these 10 companies are held in whole or part by the public. The schedule shows the name of the issuing company, the shares and book amount of stock outstanding, total number of shares and respective amounts held by the public, the par value of each issue or designation of no par where that is a fact, earnings per share based on 1938 figures, per share dividends paid in 1938, Poor's rating, high and low market quotations for 1937 and 1938, latest quotations in 1939 which we could obtain at the time the schedule was prepared, and the per cent of 1938 earnings to the latest quotation. I might quote the percentage earnings.

El Paso Natural Gas Company, 8.12%; Houston Gulf Gas Company, no quotation available; Indian Territory Illuminating Oil Company did not have any earnings for its two classes of preferred stock in 1938, although there was a small bid price for each in 1939.

Interstate Natural Gas Company, 9.06%; Manufacturers Light & Heat Company, quotation not available; Memphis Natural Gas Company, 11.89%; Mountain Fuel Supply Company, 8.22%; Oklahoma Natural Gas Company, 10.71%; South Penn Oil Company, 3.69%; Southern Natural Gas Company, 10.15%.

The weighted average of figures shown in the last column, is 7.33%, ignoring, however, the two figures included in parentheses, which figures are negative in character.

I have a little difficulty with South Penn Oil Company. That is a large oil company and it appears to be a large natural gas company; in fact, Standard Statistics Service classifies it as one of the largest natural gas companies east of the Mississippi River, but I have not been able to obtain sufficient information to classify it as a producing and transmission company purely. I have included it and at the same time I will give an average exclusive of the stock of that company. The weighted average is 7.33 per cent including South Penn, and 9.14 if South Penn is excluded. I do not include the Houston Gulf and Manufacturers Light and Heat Company in the average.

I have already explained Schedule 5-G, which shows holdings by affiliates of the common stock of the natural gas companies listed in Schedule 5.

In Schedule 6 we show recent issues of bonds by natural gas companies; by recent issues I mean issues since 1935. The issues are shown by Moody's ratings. For instance, Southern California Gas Company in July,
1512 1935, issued first and refunding mortgage 4% bonds due 1965, with a rating of Aaa in the amount of $15,000,000.

The net cost to the company was 4.11%. The yield to the public was 3.91% as shown in the last column.

Incidentally, the last quotation we had for that security showed that it was selling on a basis of 3.70% to maturity and was selling above call.

The Arkansas-Louisiana Gas Company issued in 1936, $10,000,000 of bonds with a rating of "A," with a yield to the public of 4.18%. That security was refunded in 1939 as shown by the table when $3,000,000 first mortgage 2¾% bonds and $9,700,000 first mortgage 3½% bonds were issued at 2.75% and 3.50%, respectively. Those refunding issues are shown down towards the bottom of the page.

The Panhandle Eastern Pipe Line Company in March, 1937, issued $24,000,000 of bonds with a rating of "A," and a yield of 4.23% to the public, and those securities were selling on a 3.55% basis, on the latest date for which we could get a quotation, and the market price at that time was above call.

The Oklahoma Natural Gas Company in June, 1936,

issued $20,000,000 of bonds with the rating of "Baa," at a yield to the public of 4.64%. In 1939 the same company issued $17,000,000 of first mortgage 3¼% bonds for refunding purposes, at a yield to maturity of 3.46%.

The Southern Natural Gas Company in 1936 issued principal amount of bonds of $15,000,000, rating "Baa," at a yield to the public at maturity of 4.50%. Those bonds were selling at the last quotation we could get, on the basis of 3.90%.

The El Paso Natural Gas Company, in June, 1936, issued bonds in the principal amount of $7,500,000, with the rating of "Ba," at a yield to the public at maturity of 4.6%. Those were refunded in December, 1938, as shown in the lower section of the schedule, by an issue of other bonds yielding 4.20 and 3.59. There were two issues.

The Northern Oklahoma Gas Company—and that is a company which I probably should not have included in this schedule because it has earnings of less than two and a half million dollars, but it was included through an oversight—issued a million dollars of bonds in 1936 at a yield to maturity of 5%.

In the final section of the schedule are shown issues of bonds for natural gas companies, which issues were sold privately and for which we could not get ratings.

Thus, the Mississippi River Fuel Corporation in February, 1937, sold bonds in the principal amount of $10,000,000 at a yield of 4%.

The Southern Natural Gas Company in October, 1937, issued a small amount of bonds, $650,000, at a yield of 4.71%.

1513 The El Paso Natural Gas Company issues have already been described.

The Cities Service Gas Company in December, 1938, issued mortgage bonds in the principal amount of $20,000,000, on the basis of 3.75%.

I have already described the issues of the Arkansas-Louisiana Gas Company in 1939, yielding 2.75 and 3.50%.

The Northern Natural Gas Company, in August, 1939, issued $16,000,000 of first mortgage 3¼% bonds, at a yield to maturity of 3.25%. The average yield of those bonds sold privately, for which no ratings are assigned, was 3.59%.

I did not show the over-all per cent cost to the company for the "A" bonds, the "Baa" bonds, and the "Ba" bonds,

similar to the per cent yield to the public. It would vary, of course, but it would be pretty close to the average between the two. It would not be much different. It probably should have been given.

Question by the Examiner.

The time element is an important factor in explaining why the "Baa" Oklahoma Natural Gas Company bonds should yield 3.46 while they have a lower rating than some of the others. You can't compare that issue with "A's" and "Aaa's" because they were prior years. The Oklahome Natural bonds were issued in a very favorable market in August 1939.

Direct Examination by Mr. Slaff Resumed.

Passing now to Schedule 7, we could only find two issues of preferred stock of natural gas companies sold during the period from January 1, 1935, to September 30, 1939, and these were issues of the same company. The Oklahoma Natural Gas Company in October, 1936, issued prior preferred stock at a yield of 6%. In 1939 it issued 5¼ preferred stock to yield 5.29%.

I would like to explain Chart 4 headed "Companies Affiliated (Directly and Indirectly) with Natural Gas Pipeline Company of America and Texoma Natural Gas Company," starting with the bottom, to show at the bottom on the left the Natural Gas Pipeline Company of America, and on the right the Texoma Natural Gas Company. The Columbian Carbon Company owned 2.5298% of the stock of both companies. It also owned over a million and a half of bonds of Natural Gas Pipeline Company. The bonds are in the same percentage.

The Texas Corporation owned 17.5832% of the stock of each of the companies, and owned bonds of the Pipeline Company in the same percentage.

The Standard Oil Company of New Jersey owned 13.3145% of the stock of the Natural Gas Pipeline Company, and the same percentage of bonds of that company.

The Southwestern Development Company owned 13.3145% of the stock of the Natural Gas Pipeline Company, and the same percentage of the bonds of that company, and owned 26.629% of the stock of the Texoma

Natural Gas Company. The Southwestern Development Company owned 100% of the Canadian River Gas Company.

It owned 42½% of Colorado Interstate Gas Company.
1514 And the Standard Oil Company of New Jersey owned 42½% of the stock of the same company, and the Public Service of Colorado owned 15% of the stock of the Colorado Interstate Gas Company.

The Mission Oil Company owned 47.28% of the stock of the Southwestern Development Company, and Consolidated Oil Company owned 51% of the stock of Southwestern.

The Cities Service Company owned 26.629% of the stock of Natural Gas Pipeline Company as well as the same percentage of bonds of that company, and it owned a similar percentage of the stock of the Texoma Natural Gas Company. Cities Service Company also owned 100 per cent of Cities Service Power & Light Company, which in turn owns 100 per cent of Public Service of Colorado. When the term "owns 100%" is used in that connection, I mean 100% of the voting stock.

The Natural Gas Investment Company owned 26.629 per cent of the stock of the Natural Gas Pipeline Company of America, and the same percentage of the bonds of that company, and owned the same percentage of the stock of the Texoma Natural Gas Company.

79.54% of the stock of the Natural Gas Investment Company is owned by the Peoples Gas Subsidiary Corporation, and that company was controlled 100% by the Peoples Gas Light and Coke Company.

14.05% of the stock of the Natural Gas Investment Company was owned by the Public Service Company of Northern Illinois; 99% of the stock of Public Service Company of Northern Illinois was owned by Commonwealth Edison Company, which company owned 100% of the Commonwealth Subsidiary Corporation, and the latter company in turn owning 63% of the Western United Gas and Electric Company, and this last company owned 6.41% of the stock of the Natural Gas Investment Company. The Natural Gas Investment Company also owned 100% of the stock of the Chicago District Pipeline Company.

Schedule 8, as indicated in the heading, shows recent financing by certain affiliates of the two companies involved in this proceeding.

One of the companies, the Standard Oil Company of New Jersey, in May, 1936, issued $30,000,000 of 3% debentures,

1961, at a yield to purchasers of 3.12%. I might state that the figures in parentheses to the far right in the schedule refer to the sources of the information contained in the schedule, and the footnotes are explained on page 2 of Schedule 8.

The same company in May, 1936, issued $55,000,000 of 3% debentures, 1961. Private sale to Rockefeller Foundation at 3.12%. The company, likewise, in July, 1938, issued $50,000,000 of 2¾% 1953 debentures at a yield of 2.83%. In the same month the company issued $31,000,000 of serial notes to yield 2.50%.

The Texas Corporation, in June, 1936, issued $60,000,000 of 3½% debentures, at a yield of 3.50%, and the company in April, 1939, issued $40,000,000 of 3% debentures, at a yield of 2.93%.

1515 The Consolidated Oil Company in June, 1936, issued $50,000,000 of 3½% debentures at 3.67%, and in August, 1938, issued $25,000,000 of debentures at a yield of 3.38%.

The Public Service Company of Northern Illinois, in October, 1938, issued $80,000,000 first mortgage bonds at a yield of 3.34%.

The Commonwealth Edison Company, in June, 1938, issued $33,000,000, 3½% bonds, at a yield to purchasers to maturity of 3.38%. In August, 1938, it issued $33,000,000, 3½% bonds, at a yield of 3.31%. In November, 1938, it issued $34,000,000, 3½% bonds, 3.29%. In June, 1938, it issued $39,083,195 3½% debentures at a yield of 3.50%. In August, 1938, it issued $39,250,000, 3½% debentures at a yield of 3.50%. In December 1938, it issued $24,896,900 of debentures, 3½%, at a yield of 3.50%. In May 1939, the Commonwealth Edison Company issued $114,500,000, 3¼% bonds, to fourteen insurance companies, the bonds selling at 102. The latter issue is not shown on this schedule.

The Peoples Gas Light and Coke Company, in May, 1936, issued $22,000,000 first and refunding mortgage bonds, at a yield of 4.16%.

I would not classify any of the bonds shown on pages 1 and 2 of Schedule 8, as natural gas company securities.

(At this point EXHIBIT 186 was offered and received in evidence without objection.)

Generally speaking, I am familiar with the operations of defendants. I have studied the financial reports relative to the transactions, the financial positions of the companies.

I have read considerable testimony in this present case, and in addition I have had a staff of accountants investigating the books and records of the two companies, and that staff has made preliminary reports to me. I have also read summaries of the contracts on file with the Commission by the companies.

Both companies have undoubtedly bad financial structures, although due to the fact that all their outstanding securities are held by affiliates, the problem is not important from the investigator's viewpoint.

Thus, the Texoma Company had outstanding on December 31, 1938, capital stock in the amount of $500,000, and bonds in the amount of $19,650,000.

The Pipeline Company had outstanding as of the same date, capital stock in the amount of $3,000,000, and funded debt in the amount of $46,500,000.

Both financial structures are obviously top-heavy with bonds.

Cross-Examination Interposed by Mr. Morgan.

No, I do not mean that if an investor desires to go into business and use his own money, he is using a bad financial structure. I mean that viewed as a study in financial structures, the financial structures are bad from the viewpoint of corporate entity. If you ignore the corporate en-
1516 tity and go to the fact that all the securities are held by affiliates, then it does not become important. If you look at the Natural Gas Pipeline Company as an operating company, an independent company, its financial structure is bad, but if you look at it as being an ownership by an affiliated company then, of course, the picture changes.

If the owners of that company had issued common stock to themselves, it would not be poorly financed. I mean, particularly, that the company's structure is such that the company could never hope to finance publicly with such a structure. It just couldn't do it. It wouldn't try to do it.

Direct Examination by Mr. Slaff Resumed.

The companies would have no difficulty in financing at a low cost if they restricted their securities to a proper amount with a reasonable ratio of bonds, preferred and

common stock. I have not the least doubt that the companies could finance on as favorable, if not a more favorable, basis than any natural gas producing and transmission company in the United States.

Cross-Examination by Mr. Morgan.

I am basing my statement on my experience in making rate of return studies, and all the qualifications I have given here.

I have testified in other rate of return cases. From 1929 to 1936 I testified before the Maryland Commission in all rate cases which the Commission had. I might mention the large ones, the Potomac Edison Company, the Conowingo Power Company, the C. & P. Telephone Company, a couple of cases involving transportation of milk to the City of Baltimore, and the water utility.

I have also testified in the court case involving the C. & P. Telephone Company versus the Public Service Commission of Maryland, tried properly in 1933 before a statutory court in Baltimore, Maryland.

I have testified before the Federal Power Commission in the Albany Lighting Company case, in the Interstate Power Company case, and I have been responsible for the testimony given by members of my staff in the Safe Harbor Water Power Corporation case which was recently heard by the Federal Power Commission.

I do not have any working papers by which I have undertaken to compare the two companies here involved with other natural gas pipeline companies as to financial items. All the financial information was contained in the report. However, as to other facts, we do have information. I have two volumes of information in my office dealing with natural gas companies. One of them is an immense volume which shows all natural gas companies which have responded to one of the orders of the Commission, Order 51 or 53, I forget which, in which we analyze the transactions of the company, give its business, its transmission lines, wholesale and retail sales, et cetera. That information will be available for examination by representatives of defendants.

1517 FRED KLEINMAN, a witness for complainant, testified:

(November 7, 1939)

Direct Examination by Mr. Booth.

My name is Fred Kleinman. I am Chief of Accounts and Finance of the Illinois Commerce Commission.

(At this point the witness handed the reporter a document consisting of a statement of qualifications of the witness which the Examiner directed the reporter to incorporate in the record. The statement follows:)

I graduated from Cornell University, Ithaca, New York, with the degree of Bachelor of Arts in 1913.

Very shortly thereafter I was engaged in the capacity of clerk by the Brooklyn Union Gas Company, in Brooklyn, New York, which company then operated and still operates one of the largest manufactured gas companies in the United States. At that time it had four subsidiary operating gas companies and one subsidiary operating electric company.

During the period of approximately four years that I was with the Brooklyn Union Gas Company I served in various capacities, in the branch offices, and in the general office, and finally became the man responsible for the final clerical approval on the monthly statements prepared by the accounting department for the use of the management, and the annual statements prepared by the company on their various properties, and the annual reports to the Public Service Commission.

In the course of the work I handled routine investigations of many phases of accounting for these utilities and worked on the rate cases then pending, under the supervision of the general auditor.

As part of my duties there I made a regular audit of the main company and its subsidiaries—an internal audit, of course—as to the results of reporting by the various departments which furnish information to the general accounting office, from which data the final accounts are compiled.

In 1917 I left the company and took a position with the National Aniline and Chemical Company. That company was then a recent merger of six of the largest dye stuffs and chemical specialty companies in the United States.

They were doing a gross business in excess of $100,000,000 a year. I was the assistant to Mr. George W. Yates, who had been comptroller of the American Tobacco Company, and who was then engaged by the officers of National Aniline in the installation of a complete accounting and cost accounting system.

As Mr. Yates' principal assistant, I was very thoroughly familiar with the entire procedure of the installation of this new system, as well as investigating the results of the system then being replaced.

At the end of a year Mr. Yates' engagement terminated and there was a change in the officers; I was called to military duty and I left.

1518 Immediately after the War I took a position with the Emergency Fleet Corporation. I was originally assistant local auditor and afterwards the local auditor of the Newark Bay Shipyard of the Submarine Boat Corporation. This was the second largest shipping Board contract in the United States, the largest being the so-called Hog Island plant. I was the responsible accounting official in charge of the work at that yard; I signed checks for all disbursements subject to a counter sign, collected the receipts and handled the accounting. These disbursements ran into hundreds of millions of dollars. The principal work that I was engaged on was a re-analysis of the records of the company leading toward the ultimate settlement of this contract between the Submarine Board Corporation and the Emergency Fleet Corporation, which represented the United States Government. There were, of course, many differences of opinion and many claims and counterclaims arising out of the sudden cessation of this large contract for building 150 vessels and a shipyard to build them, when the entire ship-building program ceased with the termination of the War.

I remained there until the settlement contract was drawn and the work practically abandoned.

I then accepted a position with the firm of Barrow, Wade, Guthrie & Company, public accountants. Barrow, Wade, Guthrie & Company had been the auditors for National Aniline during the period of my engagement there. I knew several of the partners, and some of the men very well, and when I contacted one of the partners for a position with that firm I was immediately engaged.

The firm was engaged in the general accounting prac-

tice and had many offices all over the United States, and connections in foreign countries.

While I was employed by that firm I worked on a variety of accounting work, but from about 1925 on I specialized in utility work and principally in the investigation of utilities prior to the purchase of the utility, either as property or as a company, by some banker or some holding company.

The type of utilities covered were manufactured gas, natural gas, electric, telephone, water, street railways—every imaginable type—and the examinations covered companies large and small, and some with well-kept accounting systems, others with very poor accounting systems.

I was with Barrow, Wade, Guthrie & Company continuously for a period of twelve and a half years, that is, until April, 1933.

In April, 1933 I felt that it was advisable to make a change and secured a position with S. D. Leidesdorf & Company, public accountants, in their Chicago office, with the principal activity to advise and consult with the Illinois Commerce Commission, principally again with regard to the electric rate case of the Public Service Company of Northern Illinois which was then pending.

After working for Leidesdorf on Illinois Commerce Commission work until February, 1934, the Illinois Commerce Commission asked that I be transferred to their staff, and I became a member of the staff of the Commerce Commission. In November, 1934, I became Chief Accountant of the Illinois Commerce Commission.

1519 I testified somewhat briefly in the electric rate case of the Public Service Company of Northern Illinois, and at length on operating results in the electric rate case of the Commonwealth Edison Company, the gas rate case of Peoples Gas Light & Coke Company, as well as in other cases of less importance. In the last two cases mentioned, I made an investigation of the operating expenses of those companies for rate-making purposes.

I was also engaged in the investigation initiated by the joint resolution of Congress into the affairs and activities of the telephone industry, my particular part of that investigation being an investigation of the Western Electric, a manufacturing organization which the American Telephone and Telegraph Company owns and controls, and which supplies the Bell Telephone companies with a

very substantial part of materials and equipment for operations and for plant construction. That is the investigation conducted by the Federal Communications Commission.

With the Illinois Commerce Commission I am in charge of all accounting work. This includes investigations for rate negotiation purposes as distinguished from formal rate cases. Also, I have made investigations for the Commission on the subject of impairment of capital by payment of dividends, on the cost of property, and on the accounting methods of Illinois utilities. The annual reports filed by utilities are forwarded to my department for review. We have established a detailed audit program and check certain items every year and also every class of report is checked in detail for every company once every few years. This detailed audit reveals inconsistencies which are forwarded to the utility and whenever errors of accounting or reporting are found they are corrected. Certain basic information is compiled by my department and furnished to the Commission or one of its staff.

The Commission has promulgated revised Systems of Accounts on my sponsorship for electric and gas companies. I have been a member of the Committee on Statistics and Accounts for Utility Companies of the National Association of Railroad and Utilities Commissioners since 1935. This Committee, which is a cooperating committee between state and federal agencies, has compiled accounting regulations for gas, electric, telephone and water companies which have been recommended by the Association to the state commissions for adoption and have been widely adopted; Illinois being one of the states.

For the period 1925 to 1933, I was almost continuously in touch with the financing of corporations. Many of the prepurchase investigations led to purchase, and securities were sold. It was part of my regular duties to prepare various pro forma balance sheets reflecting alternative plans for financing. These financings were sometimes of new corporations, sometimes additional issues, sometimes mergers, or reorganizations, and, during the later part of the period, bankruptcy reorganizations. My experience was sufficiently continuous and detailed to permit of critical judgment on the various plans under consideration.

As to my duties relative to finance with the Illinois Commerce Commission, when a company files an applica-

tion with the Commission for permission to issue securities, it is my function, sometimes delegated to my assistant, Mr. Tholin, to hear the case as examiner and ob-
1520 tain full and complete information on the pertinent factors which the Commission will be called upon to consider in passing on the application, and to report to the Commission concerning those matters. These factors are principally and briefly: (1) Are the statutory requirements as to security issues complied with; (2) After the issuance of the proposed securities, will the company have a satisfactory financial structure; (3) If the securities proposed to be issued are fixed return obligations, is the effective rate of interest, determined by the coupon rate and the discount or premium on the bond, reasonably in line with current money market conditions; and in the case of common stock, is the price asked a reasonable one under the circumstances; (4) In the case of acquisitions and mergers involving exchange of securities, or a recapitalization involving an exchange of one type of security for another, is the basis upon which the exchange is supposed to be made reasonable from the point of view of the consumer, the company, and the investors.

The number of financial cases I have handled is quite large, well over one hundred. The amount of securities involved exceeds $500,000,000. The companies are of all types and sizes; the securities are issued by subscription, by exchange, by private sale and by sale to underwriters. In this connection I must keep informed as to the financings of other companies and the trend of money market rates. In connection with my duties on behalf of the Illinois Commerce Commission, involving the issues of securities presented to that Commission for its approval, I determine, on the basis of investigations my staff and I make, whether or not the cost of money to those companies is considered by me to be fair and proper. The cases before the Illinois Commerce Commission involving the issuance of securities and the approval thereof by the Illinois Commerce Commission are referred to me or my assistant as hearing examiners and the Illinois Commerce Commission has at no time recently found it necessary to require bids. Instead they place the burden on the hearing examiner to determine whether in accordance with the evidence presented by the company and his own knowledge of the cost of money under current market conditions,

the proposition of financing proposed by the company presents a reasonable cost of money to that company. That investigation is generally conducted either by me directly or under my supervision, in view of my duties as chief of the Accounts and Finance Division of the Commission.

During the course of my accounting and business experience I have had to give consideration to the factors which constitute risk in business. During the periods when I was working for a company, the Brooklyn Union Gas Company, and the National Aniline and Chemical Company, I had excellent opportunities to become familiar with the business process and the way profits and losses come into play. Later when I was auditing or investigating companies, the risks of business became an integral part of my work. The operating results and the risks undertaken by a company must be considered in order to approach the work intelligently even to the extent of contingencies which require the setting up of special reserves or the notation of contingent liabilities appearing as footnotes on the balance sheet.

In finance the questions of risks become especially important because of the implication inherent in financing that the past earnings of a company are an evidence of future expected earnings. The duty of the accountant certifying past earnings is to reveal so-called non-recurring profits and this duty demands a thorough consideration of risks both past and future. For more than 20 years, in connection with these and other problems, I have been giving consideration to risks in business.

1521 I have testified once on the subject of rate of return. That was in the gas rate case involving Peoples Gas Light & Coke Company before the Illinois Commerce Commission. The accounting department of the Commission under my general supervision has for the past year or two been engaged in making an investigation of the books and records, operating income and expenses, fixed capital account and other matters of defendants. I have obtained the earnings of the two companies up to August 31, 1939. I have prepared an exhibit setting forth the condensed comparative statement of combined profit and loss for eight months ended August 31, 1939, and 1938.

(At this point counsel for complainant requested that the document referred to by the witness, entitled "Com-

parative Statement of Combined Profit and Loss for 8 Months Ended August 31, 1939 and 1938," be marked for identification. At the direction of the Examiner the document was marked Exhibit 187.)

The figures in Exhibit 187 have been obtained from the books and records of the two companies and have been combined with proper eliminations of inter-company transactions by a member of my staff. The gross earnings from operations shown on line 1 for the 8 months ending August 31, 1939, are somewhat in excess of $1,000,000 more than the gross earnings from operations for the 8 months ended August 31, 1938.

The net earnings from operations for the two periods show an increase of $802,518.70. The net earnings available for dividends for the two periods show an increase of $1,228,984.42.

The operating expenses which are used to determine the net earnings from operations by deduction from gross earnings from operations and shown on line 2, are per the books and records of the company.

My examination reveals that during this period the amount of expense which the company has set up for regulatory commission expense is probably subject to future charges as the amount of that expense does not appear to contain all of the bills for regulatory commission expense which the company has incurred during the 8 months. However, the increase of $201,000 in expenses can be summarized as arising to the extent of approximately $175,000 due to the increased cost of gas purchased. Pipeline expense, compressor station expense, telephone expense, and other production expenses, as well as new business expense, are substantially offsetting. General and miscellaneous expense has increased approximately $150,000. The gas used by the company has increased approximately $45,000 and that expense is an offset item. In other words, an increase in the gas used by the company results in a decrease in the total expenses of the company.

The increase of general and miscellaneous expense is accounted for to the extent of $100,000 by an increase in income tax on the increased earnings, approximately $27,000 increase in other taxes, and approximately $12,000 increase in legal expenses. The regulatory commission expense on which I have just commented, has decreased by $59,000 and a new expense, the employees' retirement

plan expense, amounting to $59,532.40, appears in the 1939 accounts without any item for that expense in the 1938 accounts.

During the first 8 months of 1938 the Natural Gas Pipeline Company of America paid dividends amounting to $1,687,000. During the first 8 months of 1939 the dividends amounted to $1,500,000. That is the way those divi-
1522 dends were declared. I think the rest of the exhibit speaks for itself.

(EXHIBIT 187 was offered and received in evidence without objection.)

A risk in business arises out of a decision which must be made by a management and which, when made, will affect the subsequent profits realized by the business.

In a discussion of risks in business it is necessary, in my opinion, to distinguish between the continuous actions of conditions surrounding an industry and the continuous risking of money by the companies in the industry. The first set of factors, in general, determines whether the industry will be profitable as a whole. The second set of factors determines the relative prosperity of the companies within an industry. The risks arising out of the continuing commitment of money in a business are much more important than the risks arising out of the conditions surrounding an industry. The latter are slower and can be met over a period of years. The former are immediate and cannot be escaped. They can only be turned into a profit or loss. The risks surrounding an industry slowly affect the profitableness of the investment in the fixed assets, that is the plant, the business itself; the other factors affect the profit and loss for a given period, and its cash and credit standing.

One of the continuing risks that faces industries other than the utility industry is the conversion of cash into inventory. The size of inventories varies with the industry and with the company, but, in general, constitutes a major portion of the invested capital of an industrial company. Furthermore, in most industries this sum is risked several times during the same year—so-called turnover of capital. Beginning with the pre-season planning, industry is compelled to make provisions for a supply of the raw materials and piece parts which go into its manufacture, or of merchandise to be sold. Whether the management decides to contract in advance at a fixed price

or to pay the current market price prevailing when the materials are required, there is no way of escaping the inventory problem.

The fluctuations in the price of materials which a concern consumes or sells will go on from day to day. If a business man contracts today to sell at a fixed price, he must decide whether he will buy his raw materials at today's prices or at some future price. Whether he chooses the one or the other, he has assumed a business risk which will inevitably be a major factor in determining the size of the profit or loss his year's business will produce. If, as some businessmen do, the risk is shifted to the purchaser of the goods or the vendor of the raw and semi-finished materials, profits are drastically curtailed, but, of course, so are losses.

From the point of view of the investor the mere showing of handsome profits in one year by a company cannot be taken as a measure of the desirability of investment. A manufacturer might finish the year with a very handsome profit arrived at entirely through advance in price of one of the raw materials which he uses and of which he had a large stock or contract, and all of his sales may have been made at an actual operating loss if the price level of materials used is considered.

1523 This type of profit cannot be relied on and is, of course, hazardous in the extreme. A year such as 1937 found financial writers emphasizing this type of risk. Prices of raw material and indexes of production had been rising quite steadily over a period. But the end of summer in 1937 found most industries with well-stocked shelves at what proved later to be high prices. The manufacturer who during the first seven or eight months of the year had been manufacturing for sale and not for stock and had stored up no supplies of raw materials could show a much more substantial profit, all other conditions being equal, than one who manufactured for stock or had contracts outstanding for his raw materials.

However, during 1936 the opposite condition had in general been true and the man who had contracted in advance for stocks of raw and semi-finished materials showed a larger profit than did the man who merely manufactured or purchased for sale. Every accountant knows the importance of this risk—he must carefully examine the inventory pricing. The almost universal valu-

ation of inventories at cost or market, whichever is lower, for reporting to stockholders and for income tax purposes, without the valuation at market if market is higher than cost, is indicative of the importance of the risk.

Only public utilities and those few manufacturers whose raw materials and products are so specialized that there is no competitive market, escape this risk. The two companies we are considering have a very small percentage of capital in inventories, and the fluctuation in price is too small not to permit the recoupment of full cost through operations.

Another type of risk arises out of the labor situation. Whenever a manufacturer contracts to deliver his products at some future date at today's prices he must face the risk inherent in the labor situation. It must be kept in mind that in manufacturing industries the element of wages is a much more important part of sales value than it is in the utility industry and particularly in a case of the two companies. The census of manufacturers, for example, shows for 1937 that 1/6 of the value of products of all industries is accounted for by wages, whereas in the Natural Gas Pipeline Company and Texoma the wages paid are a substantially smaller proportion of the sales value of the gas.

Further, their workmen are not collected in one location, a condition which removes to a very great extent the risk of strikes and other labor disturbances. The principal substitute of gas, coal, is an example of the labor risk; natural gas has no substantial risk in this respect.

Another type of risk arises out of the overhead expense connected with business, that is, the expenses of operations other than productive wages and consumed materials. To a certain extent these expenses go on even if a factory is shut down completely; to a greater extent these expenses accumulate if the business is operating but at an unprofitable capacity. In the first place, the cubic foot sales of the Pipeline Company do not measure its revenue.

Even if the Pipeline Company sold not one cubic foot of gas, it would collect a demand charge from its principal customer, Chicago District Pipeline Company, sufficient to pay all of its expenses, including its present interest. Any business that has its complete overhead paid for

regardless of business conditions need not worry
1524 about risk. This one factor removes the Pipeline Company from the plane of ordinary industry into that of a guaranteed industry.

Another risk from which Natural Gas Pipeline Company escapes is the credit risk. It is true that many manufacturers take out credit insurance in order to escape this risk, but general industry will not pay prices which will support such insurance. It requires too much carrying charge per dollar of sales to make it economically feasible.

Natural Gas Pipeline Company has very few customers and its one large customer that takes 90% of its sales has not only its own credit standing to rely on but its payments are guaranteed by three Chicago area utilities, which guaranty would satisfy any credit man. Utilities have a very small credit risk, compared to industry in general, the two companies have substantially none.

Another type of risk which the Pipeline Company does not face arises out of competition between rival concerns for the same market with the same product. It is true that natural gas has competition with coal and oil, although it should be borne in mind that natural gas is the new competitor threatening coal and oil and not the old line established concern being threatened by a new substitute product, and that the competition is practically limited to sales to industrial concerns, not the highly profitable sales to the Chicago area utilities for resale to residential and commercial customers.

The type of competition which natural gas is called upon to meet, in general is slow in its effect on the companies' profits and small in amount. It is entirely different from the competition between rival concerns for the same market with the same product, as, for example, the rivalry between Ford, Chevrolet and Plymouth for the Chicago market for low priced automobiles, which rivalry is immediate and violent in its effects. Were one of these three manufacturers to fall behind in public favor, the result reflected in the profit and loss account for that year would be noteworthy.

This type of competition causes heavy expense for advertising and selling, an outlay which can only be recouped if the product meets with public favor. This form of competition hinges around price for quality

comparisons, the development of styles and the introduction of minor changes. A price for quality competition arises out of many varieties of the same product graded in price and in quality, so that the customer can decide his own price level and then shop for the best buy at that level. This type of competition necessarily means low profits.

The development of new styles introduces a risk which falls unevenly among competitors, permitting one to make substantial amounts of money and causing another to lose substantial amounts of money. The development of minor changes especially if covered by patents, might lose a market for a manufacturer or gain it.

It is often necessary for manufacturers to buy up or obtain rights to minor changes which are covered by patents, even though they doubt the usefulness or desirability, because they must have control over its use if it meets with public favor. The two companies have no competition from a better gas or a cheaper gas produced by a rival natural gas company.

1525 Still another type of risk arises out of varying demands for a product. This type of risk must not be confused with the demand for a particular manufacturer's product which I just discussed. In general, the risk of varying demand for a general product cannot be overcome by any manufacturer. For example, when the demand for steel falls off a manufacturer may obtain increased sales at the expense of his competitors, but he, nevertheless, has been facing the risk inherent in change in demand. The experience of the Natural Gas Company has shown the pressure of this type of risk, but it takes a microscopic examination to find its effect in the profit and loss account. Its sales to industry during 1938 fell off substantially from the peak in 1937, but the effect on profits was hardly noticeable and could be determined only with a very detailed study.

The effects of change in demand for industries other than the utility industry are much more violent and are promptly reflected in the profit and loss account for the year, and even in the stock market. The last decline in demand was sufficiently noteworthy and widespread to be known to everyone by name—the recession. Right today if the war were to stop immediately or were not to lead to the sales industry expects, I think we will find a new

name for its effects. That risk, an example of risk in change of demand, is today of vital importance to industry.

If all goes as industry expects, certain companies, not all, may realize substantial profits. But if it does not, I am of the opinion that the effect on industry, barring public utilities, and barring a few other lines of business, will be staggering. Its adverse effect on the two companies will not be noteworthy.

I examined the direct testimony of the witnesses Floyd C. Brown, Delafield, Dorau, Gilman and Emery dealing with the subject of risk.

The type of risk which arises out of technological changes has several aspects. In most lines of industry there is a need for expending substantial sums of money in research on the products to be sold. In our case, the product, natural gas, needs no such research expense and its sales cannot be affected by the research expense of any competitor which results in an improvement in the quality of its gas.

It is true that change in utilization appliances may put coal or oil in an improved competitive position (all industry finds itself faced with that type of risk), but the effect would be slow to appear and small in amount. The effect of changes in a product, in this case, natural gas, due to research within an industry, acts more rapidly and with greater intensity than does the effect of changes due to research which bring forward a substitute product.

Another type of technological change is brought about by research in manufacturing methods and devices. Here, again, no technological change in the drilling of wells or in the building of pipe lines can have a substantial effect on the business done by Natural Gas Pipeline Company. Its pipe line is built and is estimated by the company to be useful only until 1954. Until that date this pipe line is the best and it is inconceivable that another pipe line could be built to take its place. This is not true in industry in general.

1526 A steel mill might be the last word today, but if a competitor obtains either a price or a quality advantage due to a new type of mill, the older type must be replaced or content itself with substantially reduced profits.

In many lines of industry the manufacturer makes no

attempt to control his ultimate market. For that reason I fail to see very much point in the testimony of experts for the company that Natural Gas Pipeline Company has a risk which should be given consideration in the rate of return due to the fact that it does not control the market. Most manufacturers prefer to be relieved of the risk of selling and credits in return for relinquishing a margin of profit. The entire jobbing industry is indicative of this fact.

Sales agencies, such as the motor industry has established, are another example. Retail selling is divorced from manufacture more than the retail distribution of gas is divorced from production and transmission in our case. Furthermore, it must be kept in mind that to a substantial extent the Pipeline Company does control the entire Chicago area market much more than does any manufacturer and at no cost to itself.

In the first place, the Chicago area utilities have guaranteed a demand charge payable by Chicago District Pipeline Company to Natural Gas Pipeline Company which, once paid, makes it impossible for them to obtain their requirement of high B.t.u. gas from any other source in large amounts economically. In the second place, they made an investment of approximately $5,600,000 in addition to their investment in the Natural Gas Pipeline Company and Texoma.

These Chicago area utilities incur the selling expense which is substantial. I am well acquainted with the operations of all three and it is to the interest of these Chicago area utilities to sell all the gas they can. It must be remembered that at the present time the only gas that they can sell to the consumer is either natural gas or mixed gas containing a very high percentage of natural gas.

Questions by the Examiner.

You ask what is the percentage of natural gas in the mixed gas sold by the Chicago utilities. This mixed gas is an 800 B.t.u. gas. I think the artificial gas formerly sold was 530 or 565 in Chicago. The cost of the natural gas is more than half the cost of the total gas which is mixed. The $5,600,000 investment to which I referred, consists of a $3,000,000 investment in the Chicago District Pipeline Company, and approximately $1,662,000 investment by

The Peoples Gas Light & Coke Company in the conversion of its own system to take care of this high-powered gas, and approximately $800,000 expended by the Public Service for the conversion of its distribution system, and approximately $150,000 expended by Western United Gas and Electric Company for the conversion of its distribution system. The total of those is somewhat in excess of $5,600,000. I have not included in my computation the other expenses which were expended by the three Chicago area companies for such things as house heating equipment, and special expenditures of that type which they are amortizing over a period of years because it is rather difficult to find out what the total is, and $5,600,000, I think, is enough to show that these companies have a very substantial interest in seeing that they obtain a supply of the high B.t.u. content natural gas.

1527 *Direct Examination by Mr. Booth Resumed.*

These Chicago utilities do a reasonably good job of selling their commodity. The Peoples Gas Light & Coke Company, the largest of the three, recently won a national contest among gas companies for the effectiveness of its advertising. It receives favorable notices as often as any other gas company does, commenting on its selling activities.

The record of FHA houses in the Chicago area shows that in general the range and the refrigerator is a gas utilizing installation in about the proportions that are to be expected. In my opinion it would require substantial factual proof, and it cannot be based on an assumption, for anyone to predicate risk on the theory that Natural Gas Pipeline Company could sell more gas in the Chicago area market if it were allowed to control such market directly, instead of indirectly by its arrangement with the three Chicago area utilities.

Cross-Examination Interposed by Mr. Slaff.

You ask if I know anything about how the moving picture production industry fared in its attempt to control the retail market for its product. They are up before the Federal Trade Commission right now. As a matter of fact, I think an attempt to control the market by an industry or

by an individual company leads to trouble with the Federal Trade Commission or with other regulatory bodies. The only way to control a market which is legitimate is to sell the best product at the lowest price.

Direct Examination by Mr. Booth Resumed.

I have studied the exhibits and testimony presented on behalf of defendants dealing with their future operating results and future investment in plant. I have put the results of my study in the form of an exhibit entitled "Proforma Comparative Balance Sheets Annually at December 31, From 1939 to 1954 and After Liquidation."

(At this point counsel for complainant requested that the exhibit just referred to by the witness be marked for identification. At the direction of the Examiner the document was marked Exhibit 188.)

In studying the exhibits dealing with future investment and future earnings presented by the company in this case, I found it desirable to put down on paper, as an accountant or even a bookkeeper would, what these things really mean. The exhibits I will refer to, used in compiling my exhibit, were Exhibits 116, 117, 137 and 141. I will refer to those as I go along. We find that in 1939, in accordance with line 14 on page 2 of Exhibit 141, the company will spend $106,530 as a capital expenditure for replacements. Now, bookkeeping-wise, to an accountant, that means that cash will be reduced by $106,530, and that the property will be increased by $106,530. In the next line we have the cost of retiring capital replaced, $8,692. To an accountant that means that $8,692 of cash is to be expended, and the cash will be reduced by that amount, and that will be charged against the reserve for depreciation and depletion.

The next line shows salvage value of retirements, $50,832. That means that out of the property that has been replaced the company will get, either in cash or in materials, $50,832 which will be credited to the depreciation and depletion reserve.

1528 I have set down in my exhibit the information contained in Exhibits 116, 117, 137 and 141, in the way that they would affect the accounts year by year, in order to get the picture as to what would the balance sheet of these companies be at the end of each year, and what would it be after liquidation.

No, my exhibit does not show the earnings. It shows the balance sheet, what is the position of this company at the end of each year, what are its assets, what are its liabilities, and how much are each of them.

A proforma balance sheet is an accounting device that is very widely used. Whenever it is desirable to see the effect of certain future transactions on a company, they put them down in exactly the same way as they would be recorded when they actually do occur. Of course, you assume that your information is correct and from that information you build up the balance sheet in exactly the same way as if you were recording actual transactions. Because they are not actual, they are called proforma. I accepted the figures set forth in the four exhibits and am using them to see what the balance sheet would be on the basis of these four exhibits at the end of each year and after liquidation. I have said that my proforma sheet is a balance sheet based on certain assumptions. In this case it is based upon the four exhibits.

This exhibit which I have prepared is all-inclusive. In other words, it is all of the working papers that there are. It shows exactly how I built up this exhibit. You can turn to any page after page 4 and you will find listed there two types of items at the bottom of the sheet, the source, by which I mean something which the company has in the record, and the data, by which I mean something I have compiled and the source of which I show exactly.

My summary sheets are sheets 2, 3, 4, and 5, which are Schedules 1, 2, 3, 4. I think that for the purpose of explaining the exhibit that I would like to point out one of the supporting sheets; for example, take Schedule 5 which is shown on sheet 6.

Now, here on this schedule in column "(b)", I give the cost of additional property, and you will see from "Source" that it comes from Exhibit 141, page 2, line 22. The way the exhibit was prepared was finding the cost of additional property in a company exhibit, we took that and listed it down year by year. Next to it, in column "(c)", we put capital expenditures for replacements, which comes from Exhibit 141, page 2, line 14. Next in column "(d)", we have the total additional capital investment which, while it is the total of columns "(b)" and "(c)", can also be obtained from Exhibit 117, page 1, line 3, direct from the company, so that I took the precaution to see that these

four exhibits that I am using seemed to be made up on one and the same basis and that it is proper to use the four of them at one time.

Now, in column "(e)" we have the book cost of property retired, and that comes from Exhibit 117, page 1, line 6. The difference between column "(d)" and column "e)" is the net change for each year in the capital assets, and by adding or deducting the net change to the balance at the end of the previous year, you get the balance at the end of the year as shown by footnote "B."

1529 The figure at the bottom of column "(g)", $69,179,314, is the balance which will be in the capital accounts of the two companies as of December 31, 1954, at which time these two companies will be ready for liquidation. That figure is based upon exhibits presented by the company and admitted into evidence as Exhibits 116, 117, 137, and 141.

While, in general, I found all of the information which was needed to compile this exhibit, I did find it necessary to make certain assumptions. Page 1 shows the four most important assumptions. The first assumption was as to dividends. The company had made no estimate as to what future dividends were to be. The dividends which I have allowed for the purposes of this statement are cash dividends to be paid each year, 25 per cent of the stated value of the capital stock of Natural Gas Pipeline Company of America, outstanding January 1, 1939.

No dividends are to be paid on the capital stock of Texoma Natural Gas Company until liquidation.

The next assumption I made dealt with other net current assets. This caption reflects, as you will find from the sheet bearing that title, quite a number of accounts, but the ones that we are principally interested in were the changes in taxes accrued resulting from the payment of Federal and State income tax in the year following accrual because they vary in substantial amounts, and changes in interest payable, based on the assumption of borrowings and repayments. Changes in current assets other than cash and changes in current liabilities other than taxes accrued and interest payable, have been assumed to be offsetting.

I think that assumption is a proper one to make because in all events the principal item of your current assets will be the accounts receivable of these companies from the Chicago District Pipeline Company, and that amount remains substantially the same according to the earnings

statement submitted in Exhibit 141, and at all times the company will have a sufficient amount of cash, in accordance with the other assumptions that I have made, to pay all of their bills at the end of the year or as they become due.

The third assumption I made was in reference to the item of salvage. I assumed this item to represent either cash value realized, or materials reused during the year for which the salvage was estimated. There may be some slight delay, but the amount involved is so small that if I am in error in that assumption, the net effect on the exhibit as a whole will be negligible.

The fourth major assumption that I made was with respect to borrowings in those cases where I found it would be necessary for the company to borrow money. I assume that the borrowings would be made 15 days in advance of the date on which the company is obligated to make its sinking fund payments to retire bonds. The interest is assumed to be six per cent. So that, in effect, the bonds due to be retired under the provisions of the company's mortgage will be extended by the holders thereof for the additional period required until there is sufficient cash in the company to pay the amount up.

Interest on borrowings are assumed to be payable
1530 every six months and repayments of borrowings are assumed to be made on a semi-annual date at which the recurring six months' interest becomes due. In my opinion those assumptions are sufficiently liberal that I think they cannot be criticised.

Based on the four exhibits reflecting the information necessary to arrive at balance sheets at the end of the year with the assumptions which I have just referred to, I find that the balance sheet at the end of each year would be as shown on sheet 2, with amortization of capital assets on an arbitrary straight-line basis. The accounts which I show are in column "(b)", the capital assets, and column "(c)", the cash.

In column "(d)" are other net current assets; column "(e)", bond discount, with the total assets shown in "(f)"; column "(g)" shows debt obligations; column "(h)" is reserves for amortization of capital assets; column "(i)" is the capital stock; column "(j)" is surplus, and "(k)" is total liabilities and net worth. Columns "(k)" and "(f)" are the same, as they must be.

In lines 1 to 16 we have the balance sheet for the date

December 31, years as noted. Line 17 is the balance sheet after liquidation. That is based upon the assumption which the company has made in this case, namely, that it would be compelled to go out of business at the end of 1954 due to the exhaustion of the supply of natural gas in the Panhandle field. The figure $47,537,862 shown in column "(c)" under the caption "Cash," line 17, is the cash that will be on hand after these properties have been liquidated to pay off the previously unpaid investors and consists of capital stock, $3,500,000.

That means that the company would have $47,537,862 in cash, and retirement of the bonds which are now outstanding or the retirement of such indebtedness, other than the capital stock, as the company might incur between now and the end of 1954, and the payment of 25 per cent cash dividends each year on the capital stock of Natural Gas Pipeline Company of America. In other words, I have assumed that the company would pay an average annual cash dividend of 25 per cent on the $3,000,000 common stock of Natural Gas Pipeline Company of America during each of the years 1939 to 1954, and have arrived at the conclusion on the basis of the company's own exhibits introduced in this case, that the company would have remaining $47,537,862 after the retirement of the company's bonded indebtedness.

That figure is also based upon the assumption that there be no rate reduction during that period. Of the $47,537,862 remaining, only $46,250,230 will be available on January 1, 1955. I presume that it will take some time to liquidate the company. The balance comes in after the disposition of the pipe line.

Page 3, as its heading indicates, is the same as page 2, that is, it is a comparative balance sheet at the end of each year and after liquidation, excepting that the reserve for amortization of capital assets is built up on an arbitrary sinking fund basis instead of on an arbitrary straight-line basis.

I would like to point out that the only difference between the two is the amount at the end of any one year which is in surplus, and the amount which is in reserve at the same time. The total of surplus and reserve is always the
1531 same because that is the total of the profits remaining for depreciation, depletion, amortization of capital assets, and return, so that it doesn't make any difference which way you set up your amortization of capital assets,

or which way you depreciate and deplete, excepting as to the intervening surplus accounts.

The amount of cash at the end of each year is exactly the same. The amount of capital assets is exactly the same, the net current assets are exactly the same. Everything else remains exactly the same. Because this company is allowed to recover the value of its capital assets, which it will lose during its operation, at some time during the whole period, each person might have his own idea as to how much should go in in any one year. If he puts in more there is less left for surplus available for dividends. If he puts in less, there is more left for surplus and dividends, but over the whole period he can only get $69,105,182, which is a loss on the capital assets.

Cross-Examination Interposed by Mr. Morgan.

I get the figure $14,867,000-odd from Schedule 10-B. I start the amortization in 1939, but of course I bring forward the balance on the books of the company as shown in Exhibit 137, page 1, line 36, column 8. I haven't gone back of regulation or anything else. I have taken the balance sheet as shown in Exhibit 137. I have applied to it the information shown in the other exhibits which I have mentioned, and the results are these balance sheets which we have here.

The rate of interest I have used on my sinking fund is 6 per cent, as you can see from Schedule 14, on page 23. You see the only difference it would make if you take any other sinking fund interest, is that you would allocate more to the payment and less to the interest, and the only difference between straight-line basis and sinking fund basis is how much do you take in in each year. Some time or other out of the earnings of the company it is necessary to set aside a reserve sufficient to take care of the loss on its capital assets.

How that is set aside is only of interest if we are looking at this year's situation. If all we had before us were today's value of this property, no estimate as to what will happen in the future, and today's earnings, say, for two years past, and possibly an estimate for next year, and it is necessary for the Commission then to set a rate of depreciation or a method of depreciation, it becomes of vital importance as to how much is set aside for that particular factor. But, when we are dealing as I am with the entire

future life, all I have to be interested in is that some time or other, during this company's history, it will get back all of its loss due to its investment in capital assets ultimately being of no value.

When I speak of the entire future life of the company, I am taking it as per the four exhibits. The 6 per cent interest comes from the company. Of course there isn't any sinking fund in sinking fund amortization. Sinking fund amortization is an accountant's method of computing amortization, but there is no sinking fund in it then. When the California Commission talked of sinking fund depreciation, they were not talking of any sinking fund being set aside; that is merely a method of getting at it. There is no sinking fund. It is merely as if there were a sinking fund. So far as the earnings coming from the outside, I am sorry to talk like this but it really did amuse me, because that just doesn't happen. There is no such thing.

1532 *Direct Examination by Mr. Booth Resumed.*

In the summary sheets 2 and 3, I show that the company will have $47,537,862 left to liquidate the common stock after the redemption of the company's bonds, debt obligations, and the payment of the 25 per cent cash dividend annually from 1939 to 1954, whether or not the amortization of the assets is being taken on a sinking fund or straight-line basis.

As to summary sheets 4 and 5, you ask if I assumed a rate reduction of $3,000,000 and demonstrate that also based upon those same company exhibits that the company would have $3,930,923 in cash to liquidate the same amount of capital stock after redemption of all the debt obligations and the payment of 25 per cent common stock dividend annually for each of the years 1939 to 1954, inclusive. That is correct except when you say that I assumed the rate reduction of $3,000,000 a year. I calculated the rate reduction which would leave the company with enough to pay off all of its investment and the dividends which I have stated and the odd money which in this case is $430,923.

That calculation shows that a reduction of $3,000,000 a year effective January 1, 1940, can be made and still leave the company with enough money to pay all its interest, pay out to all of its investors 25 per cent on the common stock of Natural Gas Pipeline Company, and $430,923 is the final liquidating bonus on $3,500,000 of stock.

Questions by the Examiner.

My calculations were made at a place indicated by these footnotes at the base of the column, and I think you will find as you follow those footnotes through, that I have included in the balance of my exhibit, that is from Schedule 5 on, everything. My desire was here to put in the complete story. The figures in line 17 that have been changed are $3,930,923 in column "(c)", $3,930,923 in column "(f)", $3,500,000 in column "(i)", $430,923 in column "(j)", and $3,930,923 in column "(k)".

Sheets 4 and 5 are the summary sheets where I made the calculations based on a $3,000,000 rate reduction effective January 1, 1940. Page 5 is the same as page 4. You ask if the corrections are the same. They are not corrections. They simply did not show up either in the girl's typing or in the dittoing, but it is merely again to illustrate the difference between the sinking fund basis and the straight-line basis because for this purpose it makes no difference which you use, or how much you use. Over the entire period they are entitled to recover a certain sum of money.

Direct Examination by Mr. Booth Resumed.

I don't think there are any working papers; but all of my working papers on this matter will be available to the company, their counsel and experts.

Based upon the study I have made of defendants' operations, upon my familiarity and knowledge of the money markets, upon the many years of study and analysis that I have given to business conditions, upon the experience I gained in handling the financing of utility corporations as Chief of the Illinois Commerce Commission's Accounts and Finance Department, I have given consideration to a rate of return which in my judgment should be reasonably sufficient to assure confidence in the financial soundness of the two companies and which would be adequate under
1533 efficient and economical management to maintain and support its credit and enable it to raise money necessary for the discharge of its contractual and public duties. In my opinion a fair rate of return which meets these tests is 6 per cent.

(At this point EXHIBIT 188 was offered and received in evidence without objection.)

Questions by the Examiner.

The list I gave of the cases in which I have testified is not complete or full, but they have all been before the Illinois Commerce Commission; and a great many of the cases are small and my testimony was minor. The important cases are listed.

(At this point counsel for the Federal Power Commission offered in evidence Article 4 of the Indenture between Texoma Natural Gas Company and The Chase National Bank of the City of New York, and Articles 4 and 5 of the Indenture between Natural Gas Pipeline Company of America and The Chase National Bank of the City of New York, and asked the privilege of withdrawing the originals and substituting photostatic copies thereof. Counsel for defendants offered the remainder of each of the two indentures referred to in the event the articles offered were received in evidence. The Examiner announced that he would withhold his ruling until the next session of the hearing.

Mr. Booth: If the Examiner please, I now desire to present to the Examiner and to the Federal Power Commission a motion for an immediate order requesting the Federal Power Commission to reduce the rates charged by the Natural Gas Pipeline Company of America. This motion is a motion presented on behalf of the Illinois Commerce Commission by John E. Cassidy, Attorney General of the State, by myself as Assistant Attorney General, for the Illinois Commerce Commission, and it is joined in by Mr. George Slaff, and D. A. Myse, who are of counsel in this case, for the Federal Power Commission.

This motion is presented, I will say, after very serious consideration to the evidence that has been presented in this case on behalf of the company. It demonstrates that based upon the company's own evidence that the earnings of the Natural Gas Pipeline Company and the Texoma Company over and above either the investment or the original cost of the companies' property, after payment of all expenses, taxes, and providing for amortization, or based upon the companies' reduced costs evidenced that the earnings for this year and next year, 1941, vary from nearly $3,000,000 over and above either 6 or 6½ per cent return, upon either the investment or the reduction cost, to more than $4,000,000 over and above

a 6 to 6½ per cent return upon those bases which I have suggested.

We recognize that if the Power Commission is to give consideration to the evidence that was submitted yesterday and today that the companies probably have a right to cross-examine the witnesses that were presented yesterday and today, but we believe that the case should be set down for cross-examination at the earliest possible time. The company may also present such evidence by redirect as a result of the cross-examination as conducted by the companies' witnesses on rate of return.

If the procedure is proper, I will hand to the Examiner now an original signed copy and 10 copies, and ask that they be received as part of the record in this case at this time.

I also hand to counsel for the company copies of the petition at this time.

Mr. Slaff: Mr. Examiner, as has been pointed out by Mr. Booth, I join in this motion and Mr. Myse, who is also of counsel for the Federal Power Commission, joins in this motion, and I want to add to what Mr. Booth has said, the suggestion that this motion be transmitted by the Examiner to the full Commission and that with the suggestion that argument of the motion be set down before the full Commission immediately upon completion of cross-examination of the witnesses on rate of return who have been presented by the Illinois Commission and the Federal Power Commission, and the completion of redirect testimony on the subject of rate of return by the companies.

This is, as you will observe, a motion for an immediate interim order, and the efficacy of such a motion, the efficacy of the rate regulatory process when such a motion is involved, depends upon expedition.

Mr. Morgan: Do I understand that counsel are resting their case?

Mr. Slaff: By no means.

Mr. Booth: No, we are asking, and we believe the Federal Power Commission has ample statutory authority to enter an interim order fixing fair and reasonable rates whenever it appears from the evidence in a case of this nature, as the evidence clearly discloses, that the rates of these companies are unjust, excessive and unreasonable, and contrary to the Natural Gas Act, under which the Power Commission is regulating these companies.

Mr. Slaff: May I add that such an excellent lawyer as Judge Morgan is thoroughly aware of what an interim order is in this proceeding and any other proceeding and counsel for the Federal Power Commission is by no means resting the case of the Federal Power Commission as it will be presented by counsel for the Federal Power Commission who have come to the conclusion that the Commission is now in a position to order a reduction in rates based upon the evidence which has already been presented, that the Commission has full power to do so, and that the Commission should do so, the presentation of cross-examination of other company witnesses will continue and the presentation of direct evidence by the Federal Power Commission will take place in due course.

The Trial Examiner: The motion will be received as a part of the record and will be given proper consideration by the Examiner..

Mr. Booth: I assume it will be transmitted immediately to the Commission.

The Trial Examiner: It will be given proper consideration, Mr. Booth.

Is there anything further at this time?

Mr. Slaff: Nothing except the setting of a place and date for the next hearing.

The Trial Examiner: Mr. Booth.

Mr. Booth: We have nothing else to offer at this time.

The Trial Examiner: Judge Morgan.

Mr. Morgan: Nothing else.

The Trial Examiner: There will be a five minutes recess.

Mr. Slaff: I take it the next hearing will be devoted to cross-examination of witnesses who have been presented by the Federal Power Commission and the Illinois Commission on the subject of rate of return and redirect testimony by the companies on the same subject.

Mr. Morgan: It depends on how long the hearing will last. We can say as to all of that if we know now how long it will last. It is going to take some time to cross-examine the witnesses.

The Trial Examiner: Yes, the hearing will be in recess for five minutes.

(Whereupon, a short recess was taken.)

After Recess.

The Trial Examiner: The hearing will be in order.

The first order of business at the next hearing session will be corrections.

In view of the motion that has been made, it behooves counsel to get the record completely cleared so that there will be no delay in forwarding the record along with the motion when the proper time comes.

Subject to the approval of the Commission, the Examiner sets for the date on which argument will be heard on the motion filed by counsel for the Illinois Commerce Commission and the Federal Power Commission for an immediate order reducing rates, Monday, December 11. The Commission may, of course, determine to hear argument itself. Counsel desiring to file briefs addressed to the motion will do so on or before Monday, December 11.

Mr. Morgan: Mr. Examiner, it will be absolutely impossible for us to write a brief between now and December 11 and do all that has been assigned to us with reference to cross and redirect examination of the witnesses who have already testified. It can't be done.

The Trial Examiner: If necessary the matter will be the subject of a motion at the conclusion of the next hearing session.

Mr. Morgan: I doubt if the next session will be over then.

The Trial Examiner: With respect to the next session, the Examiner sets as the date, Monday, November 27, and as the place, the Club Room on the Mezzanine Floor of the Sherman Hotel, Chicago, Illinois, and the hour 10:00 o'clock a. m.

Mr. Booth: I want to suggest right here that if the company asks for any more delay, and I think that they should be ready for cross-examination and redirect testimony on the 20th, that they file a stipulation with the Federal Power Commission to the effect that any order entered by the Federal Power Commission reducing the rates of their company be made retroactive if the order is sustained in the Courts.

Mr. Morgan: Mr. Examiner, is there going to be any requirement that we be furnished with briefs or the movants, or must be anticipate what they have to say in support of this motion?

Mr. Slaff: As far as the Federal Power Commission is concerned, or counsel to the Federal Power Commission in this case, the basis of the motion is set out in the motion papers. It is possible, I suppose, that the—I withdraw that.

Mr. Booth: Yes, the motion is in considerable detail.

The Trial Examiner: If there should be any question of setting a date for reply briefs, that will have to be considered.

Mr. Slaff: That, I presume, will be considered by the Examiner or by the Commission whichever hears the argument on the motion.

The Trial Examiner: After giving further consideration to the motion.

Mr. Booth: We will also consider the question.

The Trial Examiner: Now, with regard to setting the date for the 27th, the Examiner wishes to say that that was done after due deliberation and consultation with counsel.

Mr. Booth: I understand that counsel for the company have stated that they cannot be ready before that date and that that was the reason the date was fixed on the 27th.

Mr. Morgan: That is correct.

1534 (November 27, 1939.)

(Counsel for complainant produced a document described as a certified copy of Exhibit 156, which, he stated, was a copy of Exhibits 2 and 2-A in The Peoples Gas Light & Coke Company case, Docket No. 21170, taken before the Illinois Commerce Commission, and requested that it be substituted for the original document bearing that exhibit number. Exhibit 156 was received in evidence without objection in lieu of the previous document bearing that exhibit number.)

CHARLES W. KNAPP, a witness for the Federal Power Commission, recalled, testified:

Direct Examination by Mr. Slaff.

(At this point counsel for the Commission produced a document with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 191 for identification.)

Exhibit 191 is a revision of Chart No. 8 in my Exhibit 185. The revision in this chart was made by the United States Bureau of Labor Statistics, as announced in its August, 1939 issue of Employment and Payrolls, Serial No. R-1007.

It was explained that this revision referred to the figures from 1935. The data have been revised to conform with results obtained from a study of the 1937 census of manufacturers. The revisions affected only payrolls and employment as shown on Chart No. 8 of Exhibit 185, and the supporting schedules, which may be identified as Schedule No. 12, page 2, "Employment," and Schedule No. 12, page 3, "Payrolls." A comparison of this chart with the original chart contained in Exhibit 185 indicates that there has been no substantial change, except that the year 1938 shows a somewhat wider gap between employment and payrolls in the revised chart.

The changes, such as they are, in the figures can be seen by comparison of pages 2 and 3, Schedule 12, as contained in Exhibit 191, with pages 2 and 3 of Schedule 12 as contained originally in Exhibit 185. Of course, it should be pointed out that in Exhibit 191 the information contained in the chart and in the schedules has been brought up through September, 1939, whereas the previous chart and schedules carried through only the month of June, 1939.

Questions by the Examiner.

With regard to that exhibit, the corrections were made in a bulletin published August, 1939. It did not come to our attention until we were making a study in an attempt to bring some of these figures more nearly up to date, as we had been requested by counsel for the company. I discovered it after I testified before.

(EXHIBIT 191 was offered and received in evidence without objection.)

1535 (Counsel for the Commission handed the reporter a document and asked that it be marked Exhibit 192 for identification. At the direction of the Examiner the document was marked Exhibit 192.)

Direct Examination by Mr. Slaff Resumed.

Exhibit 192 is a revision of Chart No. 10 and supporting Schedule No. 14 of Exhibit No. 185, which was entitled "National Income Payments by Type of Payment." This revision was necessitated by reason of the fact that in attempting to bring these data up to date it was discovered that the United States Department of Commerce had made a complete revision of its estimates of national income payments for the period since 1929. It will be noted from Schedule No. 14 of Exhibit 192, in comparing that schedule with Schedule 14 of Exhibit No. 185, that, in general, the estimates of national income payments have been increased by amounts ranging from $300,000 to as much as $3,800,000,000 in various years. For example, in 1929, the original Schedule 14 showed total income payments for that year of $78,574,000,000. In Schedule 14 of Exhibit 192 the total income payments for 1929 are shown at $81,660,000,000. Those changes are brought about by adjustments affecting the types of payment designated as compensation of employees, entrepreneurial income and net rents and royalties, dividends and interest, social security benefits and direct and other relief.

In most instances the amounts shown for compensation of employees have been revised downward. However, for the year 1930 an increase of some $200,000,000 appears to be involved; for 1929 an increase of some $900,000,000 and in 1936 an increase of some $100,000,000.

The changes in entrepreneurial income and net rents and royalties are understood to have been brought about primarily by the inclusion of what is designated as business savings for agriculture in the total amount of income shown, business savings being the amount of income in excess of annual withdrawals. That change was with respect to agriculture but not with respect to any of the other types of income.

In the case of dividends and interest there have been up-

ward revisions in every year varying from $200,000,000 in 1929 to as much as $700,000,000 in 1936.

It will also be noted that the last two columns of original Schedule 14 have been combined in Schedule 14 of Exhibit 192 and the increase in this type of payment in the new Schedule 14 is occasioned primarily by the inclusion of pensions by private corporations which had not been previously included in the estimates of national income payments.

(At this point Exhibit 192 was offered in evidence.)

Exhibit 192 is substituted for Chart No. 8 and Schedule No. 12. My explanation of that change is the discovery of the corrected figures, the same as in the case of Exhibit 191.

(EXHIBIT 192 was received in evidence without objection.

Counsel for the Commission then handed the reporter a document with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 193.)

1536 Exhibit No. 193 for identification consists of Chart No. 11 and supporting Schedule No. 15, which are being substituted for the same chart and schedule number of Exhibit No. 185.

At this point I should like to direct your attention to Chart No. 11 of Exhibit No. 185 and point to an error discovered in the curve for national income payments at the 1929 prices for the year 1932, to which the arrow points. It was subsequently discovered after previous testimony that the figure in Schedule No. 15, column (d), for 1932, should have been 81.0 instead of 93.8, and the new Chart 11 will indicate that had this correction been made there would have been a continuous decline in that curve from 1929 to 1933. The reason for the revision of Chart No. 11 was primarily to record the changes produced in the index of national income payments by reason of the changes already described in connection with Chart No. 10 and Schedule No. 14 of Exhibit 192. The revision of the Department of Commerce brought the figure of $78,574,000,000 in 1929, up to $81,660,000,000. For 1932, of course, the figure shown here in column (d) of Exhibit 193 is 77.7, which is in the vicinity of the 81.0 revision that we mentioned before but is not identical because of the difference in the actual basic figure.

(At this point EXHIBIT 193 was offered and received in evidence without objection.)

You ask if there are any changes to be noted with respect to any of the other schedules or charts in Exhibit 185 as the result of revisions or changes embodied in Exhibits 191, 192, and 193. The answer is, only with respect to changes in Exhibit No. 191 with respect to employment and payrolls. I haven't prepared a revised schedule in this instance, but by reference to Schedule No. 22 of Exhibit No. 185 it will be noted index figures are shown for factory employment and factory payrolls for the United States in the first column of index figures, and due to the revision of index figures from 1935 forward, the figure of 106.1 for 1936 on the factory employment becomes 107.4; the figure for 1937 becomes 117.8 instead of 114.8; and for 1938 the figure becomes 97.3 instead of 94.1. There was no change in the figure for the twelve months ended August 31, 1939. Under factory payrolls for the year 1936 the figure becomes 96.2 in place of 96.0; for 1937 it becomes 114.9 instead of 114.3; and for 1938 it becomes 87.3 instead of 86.9, with no change in the figure for the twelve months ended August 31, 1939.

That is another one of the indices I brought down to date. I can give you them for the twelve months ended September 30th, all three columns if you would like. Under United States factory employment for the twelve months ended September 30, 1939, 112.1; under State of Illinois, 88.8; under Chicago industrial area, 82.7. Under factory payrolls, United States, for the twelve months ended September 30, 1939, 97.0; under State of Illinois, 85.2; under Chicago industrial area, 74.6.

I have read over my testimony and have handed Mr. Slaff certain corrections which I made in my testimony. All of my indices have been brought down to date so far as I have been able to do so with these amendments, Exhibits 191, 192, and 193.

1537 I have brought the Labor Bureau index down to date. In every instance the figures shown in all the charts and schedules have been brought down to date as nearly as possible and in many instances, if current figures are desired, sometimes I have weekly figures.

Cross-Examination by Mr. Morgan.

The changes to which I have not called express attention, but which have been handed to Mr. Slaff, go to typographical errors and things of that sort and not to the substance of the testimony. I have found there were errors, typographical errors, or errors produced by misunderstanding of my language which would ordinarily arise from attempting to transcribe what you hear. Otherwise, I stand on my exhibit and my testimony as I offered it in Washington.

I obtained my degree from the University of Vermont in the year 1931. I became a certified public accountant in the State of New York in 1934. During the interim I was engaged in public accounting work solely. I was employed by two different accounting firms, giving my entire time to the matter of accounting. During that part of the year 1938 in which I stated I was engaged in private practice in and about New York, I engaged in the practice of public accounting. I was offering my services to the general public as auditor or accountant. I don't know that there is any difference between an auditor and an accountant in the accounting field. The two terms are often used interchangeably. The general understanding is that an accountant does not keep accounts but merely checks the accounts kept by others. Such procedure is practically synonymous with auditing those accounts. The accounting department in a business is the department that keeps the accounts.

I stated in my testimony that prior to joining Allen R. Smart & Company I was employed by the Federal Communications Commission as an accounting expert on its investigation of the American Telephone & Telegraph Company. That was not work on that report which was exhibited in the hearing room at Washington, known as the "Federal Communications Commission, Telephone Rate and Research Department, Telephone Investigation," having to do with the problem of rate of return. I had no part in the preparation of that report. The term "accounting expert" is the designation or classification under which I was employed by the Federal Communications Commission. I can't say whether that designation means an employee who hasn't qualified under the Civil Service. I had not taken my examination at the time as an ac-

countant and had not qualified and received my appointment under the Civil Service. If I understand the question thoroughly, the appointment was approved by the Civil Service Commission. Of course, the appointment was not on the basis of competitive examining. I am not an expert on Civil Service law or procedure. I have told you that I was hired as an "accounting expert." That was my designation. What that implies ordinarily would be one who is versed and skilled in the subject of accounting.

While with the Federal Communications Commission I made a study of the principles and methods of consolidation employed by the Bell system in the preparation of its consolidated financial statements. I did not refer to the books of the companies. I was furnished with all
of the accounting detail which was used by the com-
1538 pany in the preparation of its consolidated financial
statements, and from that ascertained the principles and methods by which the consolidated statements were prepared. I mean the accounting principles and methods that they employed in that connection. Another part of my work consisted of preparation of reports based on accounting and research performed by others of the investments of the American Telephone and Telegraph Company and four of its associated telephone companies, those researches extending back to the origin of each of the companies.

Another task was in connection with the Western Electric Company, where, on the basis of accounting work and research on the part of the staff, I was engaged to prepare a report on the financial history of the Western Electric Company, extending back to its origin, and also during that investigation I assisted in the preparation of studies, economic studies of one sort or another, such as the scope of the Bell system in the telephone industry. That is one title. Banking relations of the Bell system; interlocking directorates—I forget the exact title of that. Various other studies. These latter studies were not primarily of an auditing or an accounting nature. They were somewhat on the order of statistics. Bearing in mind that the information had to be requested, it is appropriate to say that it was taken from the figures that were available to me and put in my possession. In other words, I had to form some knowledge of the subject,

and on the basis of that make inquiry for the type of information I thought possibly might be available. I called for the figures and such explanation of them as I required.

In my service with Arthur Andersen & Company and Peat, Marwick, Mitchell & Company, I was performing the same general accounting duties as those I have already described in connection with Allen Smart & Company. I would say that with the Peat, Marwick, Mitchell firm I was, you might say, a beginner.

My present title with the Federal Power Commission is Principal Examiner of Accounts. I have had no other experience in the business or financial field than that I have described here in connection with my direct and cross-examination. I believe the record contains a full explanation of my experience.

I have never had any experience in the matter of issuing securities because I have never had occasion to perform that type of work for any private company. I have never had anything to do with the sale of securities nor with the conduct of negotiations for the sale of securities. I have never had anything to do with the purchase of securities or negotiations for the purchase of securities in the capacity of one conducting such negotiations.

I have made studies relating to or going to the relation between bond yields and equity yields in connection with my studies with the Federal Power Commission. I don't believe that the relationship between bond yields and equity yields is altogether completely covered in these exhibits. I have data on bond yields and data on preferred stock yields, but common stock or so-called equity yields, are not shown as such in this study.

There is nothing contained in this study as yet pertaining to the subject of common stock. Now, when I
1539 said "this study" I am referring to Exhibit 185. I prepared that exhibit. I exercised my own judgment as to what was to go into it. You ask why I left out of the study anything at all concerning the yields and cost of financing from and through common stock. It was not so much that they were left out, as you phrased it. I felt that the subject of common stock would be adequately covered in so far as this case was concerned by Exhibit 186.

Exhibit 186 deals with common stocks of natural gas companies. I could not say that I did not think it was pertinent to go into common stocks except as to those natural gas companies, and that that was the reason why I did not go further with my Exhibit 185 and include studies of common stock. As a matter of fact, there is no information included in this report directly as to yield on preferred stocks, as based on market prices. We have no issues of preferred stocks showing cost to company and yield to purchasers. Except in so far as that gives you an indication of market prices, we have no data in here on yields on preferred stocks as such. Yes, of course, I think that yields on common stocks and the costs of financing through common stocks are just as pertinent as the costs and yields on preferred stocks and bonds. As a matter of fact, the record does contain information on yields on common stock and yields on preferred stock, although it happens that they were presented in the record by witnesses for the company.

You are aware, of course, that I have testified concerning certain studies we had made of testimony presented by company witnesses.

In the two exhibits here I undertook to cover the field of general financing, and Mr. Smith confined his studies to the subject of natural gas financing. In my study on general financing I confined it to bond yields and to certain preferred stock yields, and gave no information on common stock yields or the cost of financing through common stock. It is certainly my view that the yields on the 120 rated bonds charted in this Chart No. 1 of Exhibit 185, and based on Moody's thirty bonds of four different ratings, have something to do with arriving at a proper rate of return for natural gas companies. You ask me to explain why the yield on common stock of the same character of companies as those included in those Moody curves would not also have something to do with the proper rate of return to natural gas companies. In the first place, I still hold to my reply to your previous question that Chart No. 1 has something to do with the rate of return for a natural gas company. Of course, as has been testified and as presented in this exhibit as Chart No. 4, it is my feeling that Chart No. 4 is more specifically related to the discussion of rate of return for natural gas companies. Chart No. 4 would have more to do with it

than Chart No. 1 because the former, as you will see by the title, is based on bonds of forty public utilities, according to ratings, and in examining bond yields, in a discussion of public utilities' rate of return, you would naturally be primarily interested in knowing the status of public utility securities. In the statement I just made I am assuming that a natural gas pipeline company, such as defendants, is a public utility.

No, I have not put in preferred stock yields and common stock yields based on market prices, as such, although, as I have mentioned, we have in here something that very closely resembles what such a study would indicate in the case of preferred stock. I made no at-
1540 tempt in here to show common stock yields, that is true. I have made since the time of my last testimony a study of yields on preferred stocks and common stocks, and it might be desirable to present them as testimony at this time. I haven't offered it yet. It was not prepared at the time I testified. This study might be considered as an extensive picture of the securities market with this one exception of common stocks. Now, with respect to common stocks, you are undoubtedly aware that the market for common stocks in the last several years has been practically non-existent, and it is my recollection that we made an attempt to compile new common stock issues, and my recollection is that we found no representative issues. Had we found them we would have inserted those in this study.

You ask why there have been comparatively few common stock issues in the last few years. Well, there has been little expansion, of course; and, further, investors have been primarily concerned in recent years with the safety and security of their investment, which would naturally lead them into bonds. I think it would be a fair statement for the last few years to say they have been running away from risk in the making of their investments. I recognize from my study of these statistics that it has been very difficult to raise money by the issuance and disposition of common stock. I do not think that will necessarily continue. There were some issues of equity securities just about the time war broke out, or slightly afterwards, because at that time the prices of common stocks increased in some cases substantially. If that condition should continue to hold, it might be reasonable to expect that com-

panies will attempt to obtain funds through common stock financing.

I can't tell you, without having made the necessary search, which companies have issued common stock securities and offered them recently. I just mentioned that I had read this general comment. Not having studied it, I do not know whether there is any basis for that comment, but the comment appearing in a well-known business magazine, I suppose that it could be relied upon generally.

Questions by the Examiner.

Market yields on issues which were previously issued prior to the time when I was making my study of yields could be used as well as yields on new issues. I am not saying they could not be, but I was merely commenting on the fact that we had shown preferred stock issues and not yields on market prices; and I was commenting on the fact that in attempting to do the same thing for common, we were stopped by the lack of data. I am referring to new issues. The data on outstanding issues can be used.

Redirect Examination Interposed by Mr. Slaff.

It is a considerably more difficult task in that, when we are attempting to get bond yields, we have a fixed interest rate to which to relate market prices. With respect to preferred stock, we would have essentially the same thing as in the case of bonds, that is, the preferred rate. With respect to common stock, we would have to get our earnings for given periods from the published company records, and then relate those to market prices. The earnings, instead of being fixed as in the case of bonds where the interest is fixed, and preferred stocks where the dividends are fixed, would vary considerably from time to time.

Cross-Examination by Mr. Morgan Resumed.

I am not going to take the position that it is not highly important in arriving at a proper rate of return to know the cost of financing through common stock. I believe the record does contain evidence of common stock yields of certain gas companies and electric companies.

1541 Exhibit 185 is a type of exhibit that could be used in any proceeding similar to this one. I had that in

mind in preparing it. I think it is pertinent to the question of what is a reasonable and proper return for these two pipelines. We have here two kinds of information, financial information and economic information; and it certainly seems most important to anyone who is considering the subject of rate of return to know what the course of financial and economic conditions was, and, as such, it is to be used in forming a background on which some judgments concerning the subject of rate of return can be based. Largely, orientation is its purpose. It is to provide a background of information regarding general financial and economic conditions. I would have difficulty in relating the material contained in this exhibit to the specific situation of defendant in so far as the question of natural gas securities is concerned, because I have not covered that in Exhibit 185, it being understood, as I previously testified, that Exhibit 186 would cover that field. I think the two exhibits are definitely related, as an attempt to depict, first, general economic and financial conditions and, second, the financial status and outstanding securities and issuance of securities for natural gas companies. In other words, the two studies as a whole are related in that way, that you need both studies to get a rounded picture.

You ask me what Exhibit 186 discloses or shows that it would not show if I did not have Exhibit 185 in here at all. It is somewhat similar, as I gather the question's meaning. I would put it this way. That in attempting to consider what is a rate of return that is proper, your mental processes are apt to be somewhat similar to those which you would experience if you were attempting to arrange for, let us say, the flotation of an issue of securities, refunding or otherwise.

I have already testified that I have had no direct experience in connection with negotiations for the purchase and sale of securities. At the same time, I do have an opinion on some of the things that I would do if I were so engaged.

I would want to know what current financial conditions were, in general, for public utilities and for natural gas companies, and I would like to know something about economic conditions and I would like to know something about the securities of natural gas companies and issues of natural gas companies' securities over a period, and interest. All of those things I think, would enter into a determination of the rate of return, just the same as they would enter

into any consideration of what should be done in connection with the arrangement for the issuance of securities.

I would not agree that this material could be used "merely" for orientation. I think it is a very important matter. I recognize that in arriving at a proper rate of return for these companies there is involved the return to the common stock as well as the bonds.

You ask me to tell the relationship between the material in Exhibit 185 and the proper rate of return for defendants. I have already stated, I believe, what this relationship is and how it is to be construed. I don't know how I can make myself any clearer on it. Bear in mind, of course, that I have not attempted to use Exhibit 186. I have not made a study of that exhibit. I did not prepare that exhibit and there may be a few things about that exhibit that I do not recall. But if it has in it what I think it has, it has the information on common stock earn-

1542 ings—price, ratios, preferred stock yields and bond yields of natural gas companies, which, taken in conjunction with the general economic and financial data contained in Exhibit 185, should afford a basis upon which it should be possible for the Commission to arrive at what it considers to be a fair rate of return.

That is as far as I can go in stating specifically what the relationship is. I have given you a general answer. I cannot give you details, because I am not as fully acquainted with Exhibit 186 as I should be in order to answer your question.

You ask whether I think that the yields on bonds and the cost of money raised through bonds of natural gas pipeline companies are just as usable without the bond yields of industry in general and business in general as the information concerning common stock of natural gas companies is usable in the absence of any information concerning the financing through common stocks of business in general. I think it is necessary to bear in mind, in answer to that question, that at least, so far as I am aware, there are no published statistics currently in use from which it is possible to derive common stock earnings—price, ratios, and preferred stock yields in the same manner as it is possible to determine or obtain yields on bonds. Now, in the absence of statistics covering a period of time, the only alternative would be a prohibitive one, and that would be to compile your own statistics.

You ask me if the bond yields shown in Exhibit 186 are more usable in arriving at a proper rate of return for defendants because of the yields shown in Exhibit 185. In answer to that question, it would appear to me from merely glancing at page 6 of Schedule No. 5 of Exhibit 186, that out of one billion dollars of natural gas companies' securities outstanding, comprising the group of companies which are listed, a mere 15 per cent is held by the public, which would appear to indicate that perhaps the study of natural gas company securities as such, would not be a sufficient basis alone upon which to determine a proper rate of return for a natural gas company. Therefore, the yields shown there must be related to the bond yields of the companies shown in Exhibit 185.

It would appear that bond yields of other companies such as are shown in Exhibit 185 are important in appraising the bond yields of natural gas companies when the latter are used in connection with a study looking to the proper rate of return for defendants. You ask if it is any less important that the yields on common stocks and the cost of financing through common stocks of the same companies whose bond yields are dealt with in Exhibit 185, be also available when we go to appraise the financing through the sale of common stock of natural gas companies. It would be necessary to bear in mind, I think, that when you say the same companies it is quite possible the common stocks of each of those companies is not held by the public, for one thing, but held by holding companies. As I stated there are no published figures concerning common stock and preferred stock yields similar to those for bond yields and it would require a compilation based on research to obtain such figures. Now, it can be done and in my opinion it would be possible to get compilations for earning—price ratios on common stocks for a month or two months or three months which would probably serve as a fair indication of what the market was for common stocks of electric utilities or public utilities in general, at least, during
1543 a fairly recent period. The period would not necessarily have to be contemporaneous with the period which the study of bond yields covered; it might be interesting and it might be helpful if it were developed in that manner. Of course, financial information on yields and such, the reason for giving that over a period of time, as I have previously stated, is to form a background of information. In stating that it might be interesting and it might

be helpful, I do not mean to express doubt as to whether it would be of any value. It probably would be of value. I mean it might not be necessary to go back, say, to 1919 and construct a series of common stock earnings-price ratios in order to determine what might be a proper and fair rate of return today. It would be just as logical to go back to that point for yields on common stocks as on bonds, but I still don't feel that it would be essential.

Redirect Examination Interposed by Mr. Slaff.

I have already stated before that it was my opinion and belief that in many instances the common stocks of the companies represented here would not be held by the public. Whether I have the basis of that detailed information with me I can't say without making a search. I am primarily speaking of the present rather than the time covered by these Moody curves which I have brought in here. The Southwestern Bell, Illinois Bell, and Pacific Tel. and Tel. are among those whose bonds are listed in the list of ten Aaa bonds used by Moody. My recollection is that Pacific Tel. has some common stock outstanding in the public hands. The common stock of the other two companies, I am fairly positive, is held by the holding company.

Cross-Examination by Mr. Morgan Resumed.

Those may not necessarily be the bonds that go clear back to the year 1920. They are changed from time to time to reflect changes in outstanding securities. I would be inclined to think in the case of a telephone company you would always find some of those in the Aaa group that had stock in the hands of the public from which a similar curve and index could be worked out; and the same thing would apply to these companies all the way back. With respect to the utilities it is a little more doubtful, because my recollection is since 1919 quite a good number of public utility holding company systems have come into being. While the bonds or stocks may formerly have been held by the public, they may subsequently have been held by holding companies after the formation of the system. In the fairly recent past and today I recognize, as I have already stated, that there is a great deal more difficulty in financing through common stock than there is through bonds, particularly high-grade bonds.

You ask me whether the bonds outstanding in the natural gas business aggregate only approximately 20 per cent of the total capitalization. I attempted to see whether that relationship existed on page 6, Schedule 5, of Exhibit 186. It does not appear to do so. I have made no study of any compilations or composite balance sheets of the natural gas industry, so I don't think I could answer that question. It would appear that more than one-half of the total outstanding securities of natural gas companies is represented by common stock in the group of companies listed on page 6, Schedule 5, of Exhibit 186, previously mentioned. Whether that would be true for the industry is another thing, but at least it would be true of companies of some size; and it would have to be borne in mind that the figure would be only an average and that individual instances may vary widely from it. That would be the over-all percentage. The common stock would be over-all somewhat in excess of 50 per cent on that basis.

1544 Yes, I know that the prices of the bonds which determine the bond yields depend largely upon the earnings of the company and the property coverage. I don't know that I can quite follow you in the suggestion that with reference to any particular company, it might be able to get money for a certain small per cent of its total capitalization at a very low rate of interest and yet find a great deal of difficulty in financing its common stock. It would seem to me, if you could get a very low interest on the bonds, the assumption would be it would be possible to obtain the remaining capital by other means. I did not say anything about cost. It would depend, of course, on many things in a situation. It would presumably depend largely on the risk. I could not compute the cost of financing through common stock by reference to the cost of financing through bonds for a comparatively small percentage of the total investment value. (Objection of counsel for the two commissions to the scope of the cross-examination overruled.)

I have made a study of certain decisions of courts and commissions from which have been derived certain elements or principles which surround the problem of the rate of return. Now, you ask me to state what elements or factors I think are important to study and develop in connection with arriving at a proper rate of return for these companies. My answer to that would be the elements that I have derived would apply to these two companies or to any

company wherever rate of return is being considered. These factors are ten in number and I will read them in that order.

1. A proper return or rate of return is a flexible concept, and not a static rule.

2. What return is proper necessitates the exercise of an enlightened judgment in each case.

3. Current conditions are controlling and general conditions affecting all business should be considered.

4. The return should be sufficient to assure confidence in the financial soundness of the utility to maintain its credit and to attract the required capital.

5. The propriety of the allowed return depends largely upon the circumstances, locality and risk of the utility enterprise.

6. The return should be equal to that generally being made at the same time and in the general region on investment in other enterprises which have corresponding risks.

7. The historical cost of money to the utility and the current cost of money should be considered.

8. A utility's corporate structure, financial history and past operations should be considered.

9. The return should accomplish, among other things, due recognition of efficiency, or lack of efficiency in management.

10. The future prospects of the utility, its taxes, its development, the potential stimulation from reduced rates, and the character of the service should be considered.

I agree that those ten elements are important. They are taken verbatim from the June 1st issue of the Federal
1545 Communications Commission, Telephone Rate and Research Department study entitled "Factors Underlying Rate of Return in Public Utility Regulation as Disclosed in Court and Commission Decisions," page BII.

I have stated that Chart No. 1, Exhibit 185, is the chart which is issued by Moody to show the particular curves portrayed for the four classes of bonds rated Aaa, Aa, A, and Baa. I have stated that those bonds are not the same from 1920 on through to the point in 1939 when the curves stop. The identity of the bonds on which the yield is computed is changed from time to time. The number of the bonds is not intentionally changed. There was a change, if my memory serves me correctly, in 1928, since which time 120 bonds were used rather than the 60 previously used, and 120 would be used today if the number of issues was

available. If there were 30 bonds of each rating available for use, they would use 120, or 30 in each classification or rating. I stated at page 7856 of the record that there are not always 120 corporations in the list, and there are not that number of corporations at this time, principally because of the difficulty of finding industrial bonds of the higher ratings. This is because there would not be very many of these bonds in existence which meet the specifications for those ratings. Most of the bonds fail to classify as Aaa and Aa bonds. They do not reduce the number of bonds in other ratings when they reduce the number of the higher class bonds. There are not 30 Aaa or Aa bonds listed at the present time. It seems there are 28 A bonds listed. It is not until we get to the rating Baa that we find the full quota of 30 bonds.

I deem this Chart No. 1 as being pertinent to some of the elements going to arriving at a proper rate of return for defendants. I would think Chart No. 1 is pertinent to elements Nos. 1, 2, 3, 4, 5, 6, and 7 of the ten elements enumerated a little while ago. You could include No. 8 as well. Undoubtedly No. 9 has a connection. Of course, it is difficult to see on just what elements these bond yields do not have some bearing. If you would get behind the statistics and examine the companies, you probably would get some indication of whether the company was efficient or inefficient in management. I think that this chart decidedly reflects facts of value with reference to the accomplishing of due recognition of efficiency or lack of efficiency in management. I think if the companies concerned were investigated that you would find companies having the high rating bonds to be companies who had efficient management. I would say the exhibit shows that in the sense that it gives you a basis or a point of start or beginning in any search for such an indication. I wouldn't say just because a bond was not included in the list of bonds shown here that that would reflect any indication that the company whose bonds were not included was not efficient. You say Moody's listing. Well, that is 120 bonds. There are other bond issues which carry Moody's Aaa rating and which are not included here. I would say that some of these securities were issued by companies which have very good management. I have not, as a matter of fact, made any study of the application of this chart to that particular element, except just the general observation that it takes good man-

agement, efficient management, to obtain low rates in obtaining capital--any kind of capital.

You ask whether I think that a bond with proper earnings times interest coverage and proper property coverage might sell for a lower yield than that of another company which had less earnings and property coverage, even though the latter were the better managed of the two. That is a
1546 pretty difficult question to answer. Management may reflect itself in various ways. It takes efficiency of management from a financial point of view to obtain a low rate on bonds. It may take efficiency of operations for a company to make enough money so that on a larger proportion of bonds its earnings coverage would be equivalent. I mean there are too many factors involved there to give a simple answer, I believe. I think a fair statement of my view is that good management leads to a lower capital cost or cost of raising capital. Following that up, on the average I would say that a well-managed company ought to have a lower rate of return, because it can get its capital at a lower cost. You ask if I think that element No. 9, "the return should accomplish, among other things, due recognition of efficiency or lack of efficiency in management," is to be recognized by reducing the rate of return for well managed companies, or whether it means exactly the opposite of that. My answer to that would be that the public is entitled to efficiency in management, and that if management is inefficient, a company would be penalized. The investor is entitled to good management, if you mean by that, we will say, an investor in a company is entitled to have that company operated under efficient management.

I haven't said that because an investor is entitled to efficiency in management he should be penalized. You ask if I think an investor should be penalized, if he has good management, by being allowed a lower rate of return on his investment. (Objection by commission counsel to above testimony overruled.)

I did not first state, I don't believe, or at least I don't recall having stated that a company should have a lower rate of return because it obtained its money at a low cost. Nevertheless, I will say that the return should be sufficient—going back to element No. 4—to assure confidence in the financial soundness of the utility to maintain its credit and to attract the required capital. Now, by the term "to attract the required capital," there is necessarily involved the subject of cost as applied to that capital. And I have

already stated that the public is entitled to efficiency in management, and that if a company was not efficient in management the result would be to penalize that company as against the company which had efficient management. I hope I have answered your question.

You ask what I mean by "the result would be to penalize that company" as against one efficiently managed. Assume that a company is so inefficiently managed that its operating expenses are excessive beyond reasonable limits. In that case a company should be entitled to reasonable operating expenses, and if its operating expenses were unreasonable, it would be penalized to the extent that such unreasonable operating expenses would not be allowed.

I certainly subscribe to element No. 9, that the return should accomplish due recognition of the efficiency or lack of efficiency in management. You ask if that means that if a company is so managed that it earns special compensation and reward for itself by reason of that special management, recognition should be given that circumstance through the allowance of an added return. I think I have said what I consider to be the meaning of No. 9.

Questions by the Examiner.

Due recognition of efficiency would not be a bonus in that sense of the word. Probably it is conceivable that there may be circumstances involved, what might be considered a revolutionary departure from existing practice, which might entitle a company to some additional reward; but I think also that that would imply in the very statement that the public is entitled to a high degree of efficiency.

1547 You call my attention to a footnote to element No. 9 reading "See Chapter 8," and point out that Chapter 8 begins on page 46 of this study which has been referred to as the source of element No. 9, and that in the third paragraph an underscoring reads: "Mr. Justice Brandies suggests that the reasonable rate to be prescribed by a commission may allow an efficiently managed utility much more." The section you have just read is subject to the same deficiency as we have been discussing before. It purports to compare something, but does not give the thing with which the comparison is being made; when it says "may allow an efficiently managed utility much more," the question is, much more than what? If an argument should be made later in this case that there should be an element

added to a certain rate of return to recognize efficient management, and it should be contested, and the Examiner should be persuaded that it should be allowed, I do not think he could find any index in Exhibit 185 for the amount of allowance that should be made. I think it is a matter of judgment in the final analysis. I don't think you can put it down in so many figures or such and such a percentage.

Exhibit 185, as I have explained before, is a general study that could apply to any similar proceeding. Now, if there is something unusual, so unusual as to be revolutionary in the efficiency of management of these two companies under discussion, I have made no such study as would give any indication of that one way or the other. I believe that possibly by this time the record must contain some discussion of the subject of efficiency of management of these two companies; but so far as that factor was concerned, I don't think that it is something that you can give recognition to in such and such percentage or so many dollars. As I have said before, I believe it is a matter of judgment. Each individual case would have to be judged on its own merits.

Cross-Examination by Mr. Morgan (Resumed).

You ask whether, if all the other elements would check out about equal and I was considering element No. 9 in particular, I would agree that if a company is well managed and if it is earning more money as a result of its good management than would be the case if it were characterized by the ordinary or conventional type of management, that it would be entitled to a higher rate of return. (Objection by counsel for the two commissions overruled.)

I have already stated my belief that the public is enitled to good management, and to service by a well managed company. Now, in view of that, I don't see how I can make any statement as to the so-called ordinary or conventional type of management which would have any effect upon the rate of return of the well managed company. You ask me whether, while I have enumerated No. 9 here, I, as a matter of fact, do not give it any effect when I get down to the question of the actual rate of return that ought to be allowed. (Objections by counsel for the two commissions overruled.)

My answer is that I haven't got down to the actual rate of return that ought to be allowed in this case. You ask what I mean by element No. 9, which I have said ought to

be considered in arriving at a rate of return. (Objection by commission counsel to above testimony overruled.)

My answer will be again that if a company is efficiently managed, as the public has a right and is entitled to expect, there should be no particular award for efficiency. If a company is not as efficiently managed as the public is entitled to expect, the company in its assumed excess of operating expenses would be penalized to the extent that those expenses were unreasonable.

1548 That is my conception of what is meant by giving due recognition to efficiency in management in fixing a rate of return, except that I might add once more, in the event of this highly unusual, revolutionary departure from present practice, if it could be shown, they would be entitled perhaps to some recognition for that unusual type of management. It is probable that such a type of unusual efficient management would be among the pioneers of any industry. That is bound to be true.

Redirect Examination Interposed by Mr. Slaff.

No, I would not say that all pioneering in an industry was included within what I have called revolutionary management. The mere fact that there is such a thing as pioneering does not necessarily impute something altogether unusual in efficiency of management. It is to be assumed that under given circumstances efficient management will always try to do the thing in the best way which science knows about or has developed, or can be developed under the existing degree of efficiency of the art in general.

Cross-Examination by Mr. Morgan (Resumed).

I think I got that expression "revolutionary" as a result of study and thought about this subject and what might be considered a reasonable interpretation of element No. 9. I think if the facts show in a particular inquiry that the conventional type of management, regarded by the industry as good management as of a given time, would result in a certain earning, and that by reason of a departure in the direction of efficiency from that conventional type of management increased earnings resulted under those circumstances, the company which has departed from the conventional and through efficiency increased its earnings over what they would have been had they gone along the lines

that were usually followed, would be entitled to a higher rate of return under a proper application of element No. 9.

Going back to Chart No. 1, at page 7860 of the record, I made a comparison between the low point in 1936 and the figures shown for August, 1939, in which I pointed out that Aaa bonds and Aa bonds reflected lower yields in August, 1939, than at the low point in 1936, while for A bonds and Baa bonds the reverse was true, with the exception that for A bonds there was only a slight increase in August, 1939, as compared with 1936, of three-one-hundredths of one per cent. There was a perceptible increase, however, between the latter part of 1936 and the middle of 1939 in the case of the Baa bonds. I would say about one-half of one per cent higher in August, 1939, for Baa bonds than in 1936.

I think I can give you the relationship of each of the rating groups in September, 1939, to their 1936 levels. For Aaa bonds of thirty domestic corporations, 1936, the low point was 3.10; September, 1939, 3.25. Aa bonds, 1936, 3.28; September, 1939, 3.49. A bonds, 1936, 3.77; September, 1939, 4.05. Baa bonds, 1936, 4.52 as compared with 5 per cent in September, 1939. I have also the figures for the month of October here, if you would like those. For the month of October we have 3.15 for Aaa bonds against 3.10 in 1936; for Aa bonds, 3.35 in October, 1939, against 3.28 in 1936; October for A bonds, 3.94, against 3.77 in 1936; Baa bonds, October, 1939, 4.88, as against 4.52 in 1936.

1549 The difference between the Aaa and the Aa bonds is described at page 6 of Schedule 1, where Aaa bonds are shown as representing bonds of the highest type of investment. With respect to these bonds, the principal and interest are protected by characteristically wide margins, the fluctuation in which is not at all likely to jeopardize the security, and among all rating groups Aaa bonds hold the best prospect of unchanging quality. Aa rank high by reason of asset and income protection, but they lack one characteristic or another of the highest type of bond investment. I don't know whether it is someone or another characteristic that distinguishes the two classes of bonds. I don't know that the language is quite as definite as that. It does say one characteristic or another, but I don't think you can be too literal about it. I don't know how you can measure the difference between Aaa and Aa bonds because if one characteristic or another is lacking in Aa bonds, certainly there is a difference which Moody's consider worth noting. I agree that these Aaa

bonds and Aa bonds come more nearly moving along parallel lines in comparing those bonds with the curves representing the yields of the other two classes of bonds—A and Baa.

The spread between Aaa and Baa bonds at the end of 1936 was 1.42. In October, 1939, the spread is 1.73. There is a wider spread in October, 1939, between Aaa and Baa bonds than there was at the end of 1936. If we go back of the depression period and take a look at the figures for December, 1927, it develops that the figure for Aaa bonds is 4.46, for Baa bonds, 5.32, which is a spread of .86 of one per cent. The spread at the end of 1927, then, was less than it was at the end of 1936, and still less than it was in October, 1939. That indicates to me that the investor is demanding greater compensation for the risks he undertakes; or, to put it in different words, he is willing to accept a lower yield in order to secure safety of principal and income. He is demanding greater compensation for risks in 1939 than he was in 1936 or 1927.

You ask which of those curves there do I regard as being more indicative of the situation obtaining with reference to financing through preferred stock or common stock. It would appear that with respect to preferred stock the yields would be more in line with those on bonds of A or Baa rating. The lower ratings of bonds are more comparable to preferred stock than would be the higher ratings of bonds because the element of security is lacking. That is true when you get preferred stock that has bond issues behind it. That observation as to lack of security is more true of common stock as compared with bonds. If we apply the observation I have made as to what this chart indicates, to financing through common stock, there would be a wider spread between yields of Aaa bonds in 1939 and the yields on common stock that year than would have been demanded in 1936 or in 1927, if we apply that method of determining the matter. On the evidence I would say that that indicates the investor is demanding more security and less risks. In the line of what I have said about those common stocks it would necessarily follow that there would be more compensation required for the risk going with the common stock in 1939 than was true in 1936 or 1927.

As a matter of fact, the greater preponderance of the financing through bond issues in the past several years would appear to be within the three higher rating groups so far as I can determine.

1550 Chart 6 shows a line which indicates the trend of the composite of Moody's bond yield averages for 30 public utility bonds with Moody's bond ratings of Aaa, Aa and A, with a line showing the average price of new capital on utility bonds, and those lines very nearly conform to one another which indicates, to my mind, that the bulk of the financing was by bonds of the three highest Moody's rating groups.

Passing over to page 2 of Schedule 7, it appears that the total volume of Aaa and Aa electric utility bonds is approximately $2,486,000,000. In the other two classes, A and Baa combined, the amount was approximately $942,000,000. The A bonds exceed the Aaa by about $130,000,000. That is for the last four years, 1935, 1936, 1937, and 1938. That circumstance indicates that investors are leaning toward security and safety, as I have already stated, that they are running away from risks, and that they are demanding higher returns for risks these last few years and at the present time, than they did in former years.

Chart 2 shows interest rates charged by banks. The figures for both 4 to 6 months' commercial paper and 60 to 90 day time loans were obtained from averages computed by Standard Statistics Company which are to be found appearing in the Commercial and Financial Chronicle; and I consulted with the Federal Reserve people in order to get an explanation of these two rates, and my interpretation based on that conversation was that these were the rates charged by banks.

I stated before that I believe the information portrayed by Chart 2 is pertinent, that insofar as these particular figures are concerned they are pertinent not because they themselves show what should be considered a fair rate of return, but because they represent just one more phenomenon to show that what is true of interest rates for one type of security, in general is true for other types.

Redirect Examination Interposed by Mr. Slaff.

My recollection is that I did make that statement on direct examination at the top of page 7865, because I wanted to have clearly understood the purpose of putting that chart in the record. I testified on direct that Chart 2 and Chart 3 are merely to portray historically the movement of interest rates, as such, and are not an attempt to offer short term

money rates or yields on treasury bonds as a measure of a proper rate of return.

Cross-Examination by Mr. Morgan Resumed.

I may or may not have said in that connection that this is just another indication of yield required in one type of financial transaction as indicating the tendencies in other financial transactions. You ask whether the lower rate of interest on this type of short term paper may indicate difficulty in over-all financing of such institutions as defendants. I don't quite see the connection to which you refer, unless it would be to assume that defendants were seasonal borrowers, or something of that sort, which is not the case. I don't quite see the direct connection between what this chart shows and the difficulties that defendans would have. I have already testified this was not put in here to indicate what should be a proper rate of return, and from that it can be deduced that it doesn't follow here rates are those that would be applicable to any type of security for a public utility company.

1551 You are approximately correct in summing up my statement at the bottom of page 7863 and the top of the following page to mean that there was a parallel movement in all types of interest and that Charts 2 and 3 were offered as evidence of the tendency in a downward direction. They do show the present time interest rates of all kinds are down to about the lowest levels.

Yes, by that I mean interest rates on borrowed money rather than yields on securities of corporations of the junior type. I am talking about debt capital and government securities and commercial paper. I don't quite see the connection between the prevailing low interest rates on 4 to 6 months' commercial paper and 60 to 90 day time loans and the amount of money available for the financing of natural gas companies. I stated, and I repeat, that this exhibit was offered to show a broader background of interest rates than would be obtained by merely examining figures showing bond yields. In other words, I am trying to broaden the financial picture so that the reader will be better informed as to just what conditions were generally in the money markets. I can't see any connection between 4 to 6 months' commercial paper and 60 to 90 day time loans, and such capital as a natural gas pipeline company would require. I think the answer that follows from my previous testimony is that

this would have no direct connection with the type of capital that these companies require. I think it is important in getting a general background to see what other factors exist in the money market, and whether bond yields, as such, are isolated as an indication of financial conditions, or whether the indications shown by bond yield averages carry through to the whole field of the money market. We gave it some consideration and decided that would be desirable.

This index does not move in the same fashion as bond yields, but it does show, especially since 1933, that the rates are at the lowest level since 1920; and I have already indicated that the same thing is true of bond yields in general. That is down to the most recent figures shown on that chart. I am merely comparing the figures of 1933 with the latest available figures that I had, in making that statement. The interest rates on the paper portrayed in Chart 2 and the bond yields portrayed in Chart 1 have not travelled together even as between 1933 and 1939, but at the same time the changes since 1935 have not been anywhere near as great in bond yield averages as for the entire period prior to that time. I think I am justified in making a generalization based on what appears to be a fact, that the changes in proportion, the relative changes, have not been very great during that period.

I can't trace a movement of bond yields and of interest rates on the paper portrayed in Chart No. 2, movement for movement, day by day, and month by month. I don't think the fact that they do not travel together indicates a lack of relation. I think you have got a general pattern here. In 1929 we had the start in our bond yield averages of something that indicated a virtual collapse of the bond market. In 1929 the interest rates on both types of paper were very high. I don't mean, and I didn't mean when I made the statement, that you could take each one of these lines and follow it down month by month and day by day.

There is a great amount of idle resources which has not
been put to work, and that, of course, is one of the
1552 things, in my opinion, that is responsible for the low
interest rates that we see here. I do not know that I would answer that it is the major thing, as there are other factors involved, such as the fact that the Federal Reserve Bank has been buying in government bonds in the last two months or so in order to support the market for treasury bonds. I mean there are a good many things that enter into it; but I think that a very important one, that idle re-

sources are bound to create cheap money. It is a fair statement to say that the banks are full of money belonging to depositors who are not willing to invest it in the light of compensation promised for the risk involved. That is a matter of common knowledge in this country. I do not know whether the banks refuse to loan it or whether business refuses to ask for the money. You have got to look at both sides of the picture, I think.

Whichever it is, there is a congestion of money which is available for the type of loan that is portrayed here in Chart No. 2, which has driven the interest rate down. That would be a fair assumption.

My understanding is, from my inquires, that the four to six months' commercial paper is paper of such borrowers as meat packing houses who need these funds for seasonal purposes, and the 60 to 90 day time loans are loans to brokers, New York Stock Exchange, which are collateralized by securities subject to substitution from time to time. I think it would be a fair assumption to say that they are the very highest kind of bank loans known to business. I don't believe the four to six months' paper has any tangible security in back of it other than the credit standing, and so forth, of the borrowers. That credit standing involves the earning capacity of the borrower. I do not know that I quite agree with your suggestion that the property which the borrower has would be subject to execution in the event that the debt was not paid, but in any case, that paper is only extended, say, to borrowers who can give reasonable assurance by their history and present position that the loans will be repaid on maturity. The borrower had to convince the bank that it is going to get its money back and that there is not any doubt about it.

Chart No. 3 has to do with the yield on U. S. Treasury bonds. I stated in my direct testimony at page 7867 that the bonds included are "bonds due or callable after 12 years, as computed by the U. S. Treasury Department for the period since 1920." I think you will find at the bottom of Schedule 3 that the bonds were not due or callable for 12 years or more beginning with January, 1926. It states that earlier figures are for treasury bonds not due or callable for 8 years or more, together with certain liberty loan issues, so that the type of bonds would not be identical for the entire period. I do not know why they used 8 years at one time and 12 years at another unless 8 years was ultimately considered to be too short a period for long-term money.

In my direct testimony, I stated that the yield on treasury bonds portrayed in Chart No. 3, like the interest rates reflected by Chart No. 2, as such are not indicative of a proper rate of return for defendants. On the whole, I think the comments I made in my direct and in response to cross-examination going to Chart No. 2, would apply to Chart No. 3. As a matter of fact, the same congestion of money in the banks and in the hands of depositors has entered into the low yield on government or treasury bonds. In addi-
1553 tion to that, there has been a supported market for treasury bonds in the last two months. I believe that it has been a supported market for some time.

I cannot say that I recall that the daily press carried a story that the Federal Reserve Bank would withdraw support for U. S. Treasury bonds about the early part of September, about the time the war broke out. I do know that there was quite a fall in the price of government bonds and an automatic rise in the yields of those bonds about the time the war broke out. Since that time, the yields have tended to go down and the prices to go up to where they were prior to the outbreak of the war, but they have not reached that point as yet to my knowledge. That has been due to the fact that there is a supported market for those securities.

I think it is largely a fact that much of the money which has heretofore been invested in government bonds was induced into that investment by the liquidity of bonds as a sort of standby investment. People consider that government bonds are safe as a medium of investment. They are liquid. People are willing to put their money into that type of bond with a very low yield because they can get their money any time something offering more comes along. When there was a spurt upward in the business conditions resulting from the outbreak of the war in Europe, there was an immediate rush on the part of those holding government bonds to sell those bonds and turn them into money for use in other things. That not only applied to government bonds but to other bonds as well, I understand. That turned out to be a mere temporary flash. The market has not quite recovered with respect to government bonds, but has largely done so with respect to corporate bonds.

Charts Nos. 2 and 3 are relevant to some of the elements I enumerated, because they are a part of the picture of the whole economy and as such they do have relevancy even though they cannot be applied specifically in constructing a rate of return.

I think judgment would have to be associated in applying Moody's bond yields, portrayed in Chart No. 1, to a proper rate of return, because I think that Moody's bond yield averages are a step nearer to the immediate problem than would be the yields on U. S. Treasury bonds. Naturally, you would have to exercise judgment in undertaking to orient the one to the other, because of the very nature of the data.

My statement on page 7867 was to the effect that "from the data presented in this section it is seen that money rates are now lower than at any time since 1920, and probably lower than at any time in the history of the country." The section referred to gives a general picture, and that would apply to all three charts, numbers 1, 2, and 3, because all were included in this section.

I think the use of the term "money rates" is justified even though all three of these charts deal with interest rates. Interest cost enters into the cost of money. I just can't see the line of distinction involved in your question.

You ask if I would make the statement that the money rate going into the cost of natural gas pipeline companies is lower than it has been in the history of the country. I have not made a specific study of the rates for natural
1554 gas pipeline companies. When I made that summary statement, I was, as a matter of fact, summing up the deductions I made from Charts 1, 2, and 3, referring to yields on interest-bearing securities; but I think that it follows, while you can't perhaps impute a direct percentage relationship except by making compilations for that purpose, yet if the cost of common stock money is low, and it is decidedly lower than heretofore, it might be that that fact would have an important bearing on the over-all cost of capital, and preferred stock money would very probably follow the trend of bond money. Common stock money might tend to even increase when the other two decreased. As we have already seen, that cost of equity capital is subject to greater risks than other forms of capital; so the cost of common stock money capital would tend to be higher than the cost of capital represented by interest-bearing securities.

I made no study and have made no computation of cost of common stock money over a period of years. Of course, we know that in 1929 the common stock prices in the market were probably way beyond what was reasonable; and that would tend to make a very low cost of money if you were selling common stock at that time. That is a matter

of common knowledge. But aside from one or two general observations of that kind, I could not make a detailed comparison over a great period of years and give you any direct answer.

The fact is then that these two higher classes of bonds portrayed in Chart No. 1, and the interest rates on the type of commercial paper portrayed on Chart No. 2, and the interest rates on government bonds, or U. S. Treasury Bonds, are not necessarily an indication of the money rates for equity capital. That is, they are not indicative of the total cost of obtaining equity capital. It would be more accurate in my summation on page 7867 if I had said interest rates instead of money rates, except that I feel that as to a strong company, which is paying dividends on its common stock, the market prices of its securities would vary from the market price of preferred stock, let us say, by perhaps one and one-half to two per cent absolutely. I did not point that out in this exhibit here or in my direct testimony. That is part of what I would say is general knowledge. I made studies which give recent indications of cost of common stock capital, so far as you can derive a cost for that kind of capital from market prices of outstanding stocks.

Over a great period of time, I could arrive at a proper level or trend of levels for financing through an issue of common stock. Over a reasonable period of time, beginning with 1931, the year the pipeline was completed, for instance, I could do that by some such process as was followed by the Federal Communications Commission in its study on rate of return, that is, taking two dates from any years and making my computations on that basis. (Objection by commission counsel, overruled.)

Strictly speaking, it is or was my intention, as I consider the matter at this time, that the rates to which I was specifically referring were interest rates, and not rates such as you have in mind, which would cover the entire cost of capital as such; although I realize that within reasonable limits it would be possible to proceed on the basis of known relationships prevailing or existing among yields on various types of securities, and to at least make a fair approximation of rates on preferred stock and common stock under current conditions; not, however, over a period of time that had not been studied.

1555 I do not see why my statement that "money rates are now lower than at any time since 1920, and probably lower than at any time in the history of the country,"

is not true even as to interest rates. I mean, the studies I have made seem to bear that out; and I believe I can refer you to a similar statement made by Mr. Willkie of the Commonwealth and Southern in proceedings before the Securities and Exchange Commission. No, Exhibit 185 does not show that that statement is not true. Well, now getting back to these exhibits, I think if you will refer to Chart 2 you will have no difficulty in following the indication laid down in my statement. I think if you will refer to Chart 3 you will have as little difficulty. If you refer to Chart 1 I think you will find that the composite rate on 120 domestic corporations in August, 1939, was 3.67 and in 1936, in December, was also 3.67. So I think my statement is fully justified. Those are the lowest bond yields for those 120 domestic corporations shown in Schedule 1 since 1920.

I believe it was quite clear from my testimony I was not talking about interest rates for particular classes of bonds, as the testimony includes statements giving exact details with respect to comparisons between 1936 and 1939 on different classes or groups or qualities of bonds. I think my statement will stand analysis in view of the facts reflected by Chart No. 1, because, as I said before, I am speaking in general terms when I make the statement. When you make a general statement, as I did, you try to get some index that represents an over-all picture, and I think by using that composite rate I have done just that. If I would have taken Aa bonds, for example, or Aaa bonds, you would have found the yields on those bonds were much lower in August, 1939, than in 1936, yet I didn't quote those in making my general statement. I was talking about money rates in general. My composite curve is not weighted in any way so far as I can gather. It is simply an arithmetic average of all the bonds included in the group of 120 bonds.

I believe you have to allow a witness some leeway in the matter of timing. In making my testimony, quite obviously I had to work when information was available to me and in front of me, and I did so. I think it must be obvious to everyone I was basing my statement on what was in the exhibit. I made my statement based on the charts and schedules included in the section of Exhibit 185 on general interest rates and yields. My statement was just a summary of that section as I saw it, as evidenced from the data and curves shown on the chart. Of course, when I make a statement that rates are now lower than any time since 1920, and probably lower than any time in the history of the

country, that last section of the statement is naturally based on general observation or information which was familiar to me, having to do with the same subject matter as reflected by these three charts. But the statement was not altogether reflected by information which only went back to the year 1920. I mean it was quite obviously so.

If my general summary statement be applied to bonds rated A by Moody's or to bonds rated Baa by Moody's, it is not a correct statement of the situation. I did not make that statement with respect to those. I did not intend the statement to apply to those two classes of bonds. You ask me whether or not my statement would apply to Ba bonds and B bonds as rated by Moody's. That seems to raise a fundamental question as to the desirability or non-desirability of including bonds in the four rating groups in an average. When you talk about interest rates, money rates, you don't go out and pick the poorest or the least efficient company in existence and say that is a basis of generalization. My summary statement obviously does not apply to bonds in those two classifications, because I based my conclusion on what is here. That is all I intended in that statement.

I have stated that Chart No. 4 portrays the yields on Moody's forty utility bonds, rated Aaa, Aa, A and Baa, from the year 1934 down to August, 1939. I put that chart in there because I was trying to get from the general to the specific. I was trying to get from a composite average and quality ratings of bonds to something that was more
1556 specifically related to the regulation of public utilities. I did not put the Moody curve for industrial bond yields in separately by rating groups. I thought it sufficient to put in the utility bonds because my understanding is pipeline companies conducting interstate transportation of natural gas are subject to regulation in certain respects. I won't go into all the features. And in that sense such companies partake of the nature of regulated utilities. In other words, I was using the terms "utility" and "regulated company" as being synonymous. Investors probably regard natural gas pipeline companies as utilities if they read Moody's at all, because Moody includes pipeline companies in its public utilities manual. It includes such companies as Natural Gas Pipeline Company of America. The bonds of the latter company are not rated. I didn't mean to imply that. It has never included the bonds of the Natural Gas Pipeline Company in any list of rated utility bonds be-

cause they are not publicly held. They are held by the participants.

You ask how investors classify natural gas pipeline company bonds. I am not acquainted with many investors personally. I have not seen any of their portfolio lists, but even if I had, I don't think I would be able to make an answer to your question from it. Undoubtedly Equitable Life Assurance Society of New York has many investments. I can assume that it is a large purchaser of securities because insurance companies are.

(At this point, counsel for defendants handed the witness a pamphlet entitled "Schedule of Securities Owned by the Equitable Life Assurance Society of the United States, 393 Seventh Avenue, New York, December 31, 1938—" Objection by commission counsel to testimony with respect to above document overruled.)

You ask me to turn over to the caption "Public Utilities," in the list of securities, and see how many natural gas company bonds I find in that list. I find that there are one or two companies in here with which I am not quite as familiar as I should be to answer the question. I think it may be possible either the Kansas City Gas Company or the LaClede Gas Light might possibly be natural gas companies, I am not sure, but I can't base any conclusion on a hurried examination of this.

I notice in the utility bond section—assuming that there were no natural gas company bonds in the public utility bond section—I feel that would be inadequate as evidence to support the fact these companies are not considered as public utility. On the other hand, glancing through the book here, I find included under "Industrial and Miscellaneous," Northern Natural Gas, El Paso Natural Gas, Mississippi River Fuel, Panhandle Eastern Pipe Line, and Cities Service Gas. I don't believe I could take this as an evidence of what an investor considers the securities of the companies to be. I believe there are nine pages of bonds listed here. They list these five natural gas pipeline bonds under "Industrial and Miscellaneous." Kansas City Gas Company and LaClede Gas probably would not be pipeline companies. I was thinking of natural gas. You did say that.

Coming back to Chart No. 4, you asked if I note whether there is the same characteristically wider spread between the yields of the Aaa bonds and the yields on Baa bonds in August, 1939, the date to which these curves are extended, than at the end of 1936. There is a slightly wider spread in

1939 than in 1936: For Aaa bonds, 3.07 in December, 1936, and in August, 1939, 2.83; for Baa bonds, the low point in January, 1937, 4.50, and in August, 1939, 4.39. Now, the spread in 1936 was a difference between 4.50 and 3.07, which is 1.43; and the spread in August, 1939, was the difference between 4.39 and 2.83, which is 1.56. The spread had not materially widened, although it is wider. It is wider in the case of utility bonds as in the case of all bonds portrayed in Chart No. 1.

1557 The companies listed on page 3 of Schedule No. 4 are the companies whose bond yields are reflected as of the present time in Chart No. 4. I do not see any companies in the list that I would recognize as natural gas pipeline companies. With the exception of Peoples Gas Light and Coke Company, they all appear to be primarily electric or telephone companies. Peoples Gas Light and Coke Company is a distributing company which distributes mixed gas. Its bonds are classified as Baa bonds in Moody's classification.

Chart No. 5 portrays bond yield averages for bonds of 40 industrials, 40 public utilities and 40 railroads, comprising all of the bonds included in Moody's list of 120 domestic corporation bonds, for which the composite average yield is shown in Chart No. 1 of Exhibit 185. The 120 bonds represented by the composite curve are the same as those which make up the other four curves, Aaa, Aa, A and Baa. It is just a classification by types of business rather than by bond ratings. I have made no comparison of the curves shown on Chart No. 5 with a curve showing the bond yields on natural gas bonds over the same period. It might be helpful in orientating the information conveyed by this chart to the natural gas pipeline companies' situation if such a curve were superimposed on that same chart. I believe, however, that the information as to natural gas company bonds has been introduced in evidence in another exhibit by one of the company witnesses, so that information is available for that purpose. I would have to make the observation, of course, that the bonds shown in Chart No. 5 are bonds which Moody's classifies as Aaa to Baa, and, therefore, it would be necessary to make some grouping of natural gas company bonds according to quality; and, furthermore, it would be necessary to determine for such natural gas company bonds the particular type of natural gas company represented. By that I mean whether it would be a pipeline company, producing company, distributing com-

pany or wholly integrated company. In this inquiry it would be proper to select bonds of those gas companies which had the business of producing and transmitting natural gas.

I don't know that it would be extremely difficult to find pipeline bonds that would classify under these four classes. Moody's investment manual gives a considerable amount of information concerning the nature of operations of natural gas companies. Moody has not done the classifying. The classifying would have to be done by the investigator. I just stated that Moody's does not classify these companies, so far as I know, according to their grouping to transmission or distribution or so on. I am talking about the classification according to operation which I understood was what you meant. It may be that it would be difficult to find natural gas pipeline bonds that would classify as to ratings so far as Aaa bonds or possible Aa bonds are concerned. That statement is probably less true with respect to A bonds or Baa, and, furthermore, there are a good many natural gas company bonds which are owned by holding companies and not outstanding in the hands of the public which, of course, would not be seen in Moody's rating.

You couldn't make up these curves if you didn't have comparable information concerning market prices of securities outstanding in the hands of the public. I don't think
1558 there would be difficulty in orienting this to the requirements of this particular proceeding. If certain conditions as to capital structure and earnings are met, it certainly seems that one could impute from these facts some judgment which could be applied to natural gas company bonds. Before I would undertake to relate these curves to a particular situation I would first be faced with the necessity of including only those bonds which have a public market. Secondly, it would be necessary to obtain Moody ratings for each of the bonds which are outstanding in the hands of the public, and then it would be necessary to obtain market prices, daily average market prices, for each of the bonds. It would then be necessary to compute yields to maturity for each of the bonds. In other words, it would be practically a prohibitive task to make such a compilation which would be directly related to Chart No. 5 or Chart No. 1. That is not to say it could not be done, but it would not be a practical matter to attempt. I don't think it would be necessary to go through all of those mo-

tions before Charts No. 5 and No. 1 could be related to a proper rate of return, because, while information concerning bond yields over a period of years provides a good background of information, it can be assumed that bond yields in general for securities of this type would follow the pattern exhibits in Chart No. 5, and that if you were to obtain bond yields of reasonably current data you would have a basis of comparison which would be reasonably accurate.

Your question was directed to me concerning natural gas company bonds, if I am not mistaken; and I was attempting to explain how this chart could be used as a basis for drawing some conclusions concerning any type of bond which bore the characteristics of these bonds as to quality. I have already stated that it would not be necessary to chart the yields for natural gas companies. You ask if it is necessary to relate Chart No. 5 to the curves representing yields on natural gas company bonds. I believe I have already answered that question, describing the manner in which this chart could be used. Since you state that you have not followed me if I have stated how I am going to use this chart in relation to the rate of return for natural gas pipeline companies, I will repeat my statement. This chart reveals a pattern of bond yield averages of bonds carrying Moody's ratings, ranging from Aaa to Baa for 40 industrials, 40 public utilities and 40 railroads. Bonds exhibiting the characteristics of bonds classified by those Moody's ratings would follow the trends indicated in Chart No. 5, and that would be true for all kinds of corporate bonds. Therefore, if we know something about current market prices, current yields on natural gas company bonds exhibiting the characteristics of the bonds as to quality, I believe that the chart certainly speaks for itself as to what might be considered the course of the bond market for natural gas company bonds. I don't believe that I intended to imply that railroads, as such, had the same characteristics as natural gas companies; but I do believe, if you take my statement as applying to public utilities, that with that correction the statement can stand.

I didn't make the statement that all we have to do is look at the utility curve and then fix the rate for natural gas pipelines. I said you would have to consider, in relation to the pattern followed by the public utilities, the current conditions with respect to market price and yield on natural gas company bonds of the type under consideration. I

mean of the type as to rating. No, you couldn't take
1559 the two lower curves, the ones called 40 industrials and 40 public utility bonds, and from those chart the trend or the course of the yield on railroad bonds. The trends are naturally dissimilar. I think you will notice if you examine this chart carefully that it has only been since the latter part of 1937 that the curves for these various types of securities have exhibited a marked divergence from one another.

You ask me whether in the early part of 1937 I could have safely used the curves showing the yield on 40 public utility and 40 industrial bonds as an index to what a railroad yield would have to be. I would have to say that you have to go from Chart No. 5 and make a rather complete study in order to determine which of the 40 railroad bonds could be grouped under the various rating groups, and get some determination in that way. I think it would be necessary, in any case, to have some knowledge of exactly how many railroad bonds were included, and the proportion of the number in each group to the nominal number in each group; that is to say, whether there were 4 railroad bonds available for inclusion in a group of 10 required or not. Then you could get some idea. You would have to study the situation in order to determine what the status of railroad bonds was and you couldn't safely rely on a curve of this kind for that purpose, in my opinion. You would have to go behind the curve. We have already done that in connection with arriving at a rate of return for natural gas pipeline companies, not on this chart, but right in this connection in Chart No. 4.

Redirect Examination Interposed by Mr. Slaff.

It is not possible to get the whole story on rate of return from any single chart in Exhibit 185 or Exhibit 186.

Cross-Examination by Mr. Morgan (Resumed).

Exhibit 185 is not intended to be a complete story from which you could make a deduction for natural gas companies. You have to use both of the exhibits, 185 and 186. All of the charts in Exhibit 185 would be of assistance, in my opinion. I have already stated that this entire Exhibit 185 is intended as an exhibit to portray general economic and financial conditions over a period of years, with which

any one would wish to be acquainted in forming any opinion on the subject of rate of return at this time. It is just a background and orientation, but that means a lot. It is not to be cast aside by the phrase "all it means."

Questions by the Examiner.

Going back a little bit to my statement that I would have to go behind Chart No. 5, speaking of railroad bonds, I meant that you would have to break them down into rating groups and find out, as we did for public utilities. The question directed to me was how I would go about studying rate of return requirements for a railroad. Well, we are not doing that here. We are studying the requirements of a public utility. I state in my exhibit before Chart No. 5, how Moody rates those bonds. The information is in there. It is in Schedule 1, pages 6 and 7, with respect to the bonds of the type represented in Moody's averages. You ask
1560 how definite the characteristics of a railroad bond are that Moody uses in determining his classification to which it should go. I have never consulted with Moody's but I think the key to their ratings, as indicated in Schedule 1, gives a very good picture. I believe the information could be obtained from Moody's. I don't know just what mathematical process or otherwise Moody's would go through in order to make their determination; but the results of their determination, as can be seen on Chart 4 in the case of public utility bonds, certainly show that there is a decided difference in the average yields of bonds according to Moody's ratings.

If you have, for instance, under consideration a rate of return on a security of the natural gas company which may be a pipeline or something else, the securities of which are not publicly held, you have no market indices. You ask whether I can do anything other than come to a general conclusion as to what category that type of security would fall into. I think there are a good many considerations involved there. You would have to decide, among other things, if the securities were owned by a holding company, whether the capital structure as dictated by the holding company represented what might be called a properly related capital structure; and, of course, it would not necessarily follow that because a company had 80 or 90 per cent of bonds in its capital structure, that that represented a properly related capital structure. I believe there are a number of

factors bearing upon the inherent characteristics of a company which are made available in Moody's Manual of Investments, and it is possible to relate various ratios of one kind or another to market prices and find some consistent pattern that shows a definite relation exists between market price and other factors.

Cross-Examination by Mr. Morgan (Resumed).

You ask how I would orient to these curves here a situation dealing with a natural gas pipeline company that wanted to issue securities, 30 per cent bonds and 70 per cent common stock. (Objection by commission counsel overruled.)

I would take Chart 5 and I would ignore the railroad curve altogether because we are not dealing with railroads in this case and none of the underlying circumstances would be similar. I would next look at the curve for public utilities and find out what lies behind that curve. Then turning to Chart No. 4 I would see the rating groups of public utility bonds and yields for each rating group. I would then take Moody's group of 10 corporations rating Aaa. I would then turn to page 3 in which those ten corporations are listed. It would then be possible to localize the information and find out from examining the statements of these companies, which are available to the public, what characteristics those companies exhibit as regards capital structure; and if I found that on an over-all basis those 10 companies had a capital structure which indicated that 40 per cent of the outstanding securities consisted of bonds, I would say that a company which was going to issue 30 per cent of bonds could be expected, assuming that they were mortgage bonds, to merit a rating of Aaa, all other things being equal as to earnings, interest coverage, etc.

You ask whether anything else would have to be considered besides the percentage of the total capitalization represented by bonds. You would have to give some con-
1561 sideration to the company's history of earnings. If it previously had securities outstanding you could refer to the market prices and yields on those securities. You could see whether there was any inflation in the fixed capital, and there would be other tests I possibly could mention but will not. That gives you a general picture.

I would consider the circumstance that natural gas comes out of the ground from reservoirs which are exhaustible.

In the case of a natural gas company you would want to see that the bonds had a sinking fund requirement that would permit their retirement so that there would not be any such obligations outstanding beyond the useful life of the gas field. I don't know just how far short of the indicated life of the field they should mature. I would have to know whose indication of the life of the field it was and on what basis. There are a good many things to take into consideration.

These considerations lead a considerable distance away from the mere determination of the per cent of the capitalization represented by bonds. I did not mean to imply a mere thirty per cent would be sufficient; but I say it leads you to a comparison and study of bonds in the Aaa classification, and, of course, you would have to take in the other factors to see if the company in particular exhibited qualities and requirements that would be necessary to make the bonds merit an Aaa rating.

I am quite sure there are no Aaa natural gas company bonds, that is, pipeline company bonds. I believe Southern California Gas Company, which conducts some transmission operations, has bonds rated Aaa. I would say it is probably largely a distribution company. What I had in mind as a possibility was the Southern Counties Gas, and I believe that is primarily distribution also. I can't say that I know of any natural gas pipeline company whose bonds are rated Aaa or Aa. The Panhandle Eastern Pipeline Company has bonds rated A. There may be smaller companies than those in here which would have A ratings, with which I am not familiar. I don't happen to know of any.

You ask why I would go back to Chart 4 and use that chart in connection with the public utility curve on Chart 5, if I were going to relate Chart 5 to the rate of return required by natural gas pipelines. If you will look at Chart 5, as I have stated, you see the curve for the 40 public utility companies. The reason for selecting that particular curve is, as I have previously stated, that the natural gas pipeline company that conducts operations involving the interstate transportation of natural gas, and is subject in certain respects on that account to regulatory action, certainly seems to exhibit the characteristics of a public utility. A railroad is subject to regulation, of course. I don't believe you want me to say a railroad is comparable to a natural gas company. I think a telephone company is much more nearly comparable to a natural gas company than a railroad be-

cause it is in the business of rendering a service to consumers in communities. A railroad does not do that as such. To my way of thinking, a railroad doesn't remotely resemble a company that furnishes gas, electric or telephone service. It is an entirely different kind of service. A natural gas pipeline company that sells gas at wholesale doesn't furnish gas directly, but it certainly does furnish it indirectly. Yes, a railroad brings the groceries to town and the grocer sells them, just like the Natural Gas Pipeline Company brings gas to the town and The Peoples Gas
1562 Light and Coke Company sells it. You can hardly consider grocery stores as public utilities.

You presented to me yesterday a pamphlet which purported to show, in the case of one insurance company, natural gas company bonds were carried as "Industrial and Miscellaneous." I have told you or testified that Moody's Manual of Public Utility Investments shows pipeline companies in its manual to be public utilities. You might refer to the Bond Quotation Record and the Public Utility Bonds and you will find natural gas companies listed under public utility bonds in that source. Just what action or decision the investor is going to come to as to whether they are public utilities or not public utilities, is something I can't predict; but I certainly think he is just as much entitled to base an opinion on the Bond Quotation Record as he is to base an opinion on a pamphlet which indicates the securities are securities of industrial companies.

I was trying to indicate that to the investor there is just as much reason for considering this company as a public utility, based on the facts I have mentioned, as there is for him to come to the conclusion it is an industrial company because it happens to appear as such in the little pamphlet put out by one insurance company. Therefore, I would say the bonds of the natural gas companies, pipeline companies, distribution companies, and what not, are logically to be related with public utility bonds rather than railroad bonds. I think that I was leading up to that reply and I think that would be my answer to your question.

I would like to point out with respect to Schedule No. 4, page 3, to which you have made reference as already has been indicated, that we find no Aaa bonds among natural gas pipeline companies; that we find no Aa bonds among natural gas pipeline companies; and we find no A bonds except that one, the Panhandle Eastern, whichever group that fell in. As for Baa, there may be some bonds in there. I

would not be surprised. In Exhibit 186, Schedule 5-A, you have the Houston Gulf Gas Company, the Oklahoma Natural Gas Company and the Southern Natural Gas Company. If you are setting out to make a list of representative public utility bonds, even if you consider those companies as public utilities, you would not necessarily consider them as representative in every characteristic of the type of bonds for this schedule.

These curves on Chart 4 reflect the actual yields on the particular 40 bonds whose yields make up the curve. There is no natural gas pipeline company in there in the case of the chart. In the rating group there could not be any natural gas pipeline company bonds in there.

I would say the ratings shown on Chart No. 4, which form the basis of the composite curve on Chart No. 5, grow out of the yields of bonds which I have already said were predominately those of electric, telephone and gas distribution companies. I would put the electric company first. They are predominately electric. They are predominately electric and gas utilities with some telephone utilities, but a much smaller number of telephone utilities are represented there.

1563 In the sense that it has a commodity to sell, it is my theory that a natural gas company which produces natural gas down in Texas and brings it through pipelines to Chicago and to some towns west of Chicago and sells it at wholesale, is more comparable to a telephone or to an electric distribution company than it is to a railroad. A telephone company sells service. It could almost be considered as selling a commodity. Of course, it is not a physical commodity. It is a service that enters your home. If you didn't have gas you couldn't serve it. Electricity is a commodity in the sense I am using that term. You can't touch it unless you want to get a shock. It is a commodity.

A lot of the expense of the telephone company and electric company is made up in the service, and the expense of getting the small quantity of electricity or the reflection of the human voice into the home. Naturally, all of their equipment, all of their operating expenses, are designed for the purpose of rendering service. There is no question about that; but the whole point of bringing gas up from the Texas field to Chicago is to render service likewise. The fact that for the past several years the yield for public utility bonds is substantially lower than that of railroad bonds would have nothing in the world to do with it, in my

opinion. I don't believe it would have made any difference in my answer if I had been considering the matter back of 1935 when railroad bonds were yielding less than public utility bonds. I would still stay with utility bonds if I were considering a natural gas pipeline company.

You ask me to explain why railroad bonds showed consistently lower yields during the years 1933 and 1934, and then cross and become substantially higher than the 40 public utility bonds whose yields are reflected here. My answer would be based on general observation, not on the detailed study. I would say that the depression largely caught up with the railroads, and since that time their earnings have continued to fall off and by the time 1937 rolled around investors considered there was too much risk and perhaps not enough earnings to warrant their continued investment. They were wiser to some extent to the extra risk they assumed. This is another instance illustrating that there is a demand for a higher return for risk. I think that is just an elementary principle of financing.

You ask for my explanation of why industrial yields, which were consistently higher than the yields on public utilities until about the end of 1932, crossed over and since that time industrial yields on these particular bonds have been consistently lower. For one thing, reference to Schedule No. 1, page 8, shows that there are only four industrial bonds with the Aaa rating which were available for inclusion in that group. On page 9, as indicated, there are only three industrials whose bonds were available for inclusion in the Aa group. On page 10 it is indicated that there were but eight industrials whose bonds were available for inclusion in the A group, and not until we reach the Baa group do we find the full complement of ten industrial bonds; and I think the answer to your question is, it is largely due to the fact that only the very highest type of industrial bonds were included in these averages, and that these were the only bonds available; and I believe that 1564 had an effect in tending to keep the yield curve for industrials as low as it appears. Nothing but the very highest type of bonds could meet the specifications for these higher ratings except in a few isolated instances. I would not agree with you that this industrial curve does not turn out to be of much value as an index. An index is designed to show something and this curve does show something. It shows something in the sense that any indexes of financial or economic conditions show something. They give you the

picture so you can see the relationship of one group of securities to another; and it gives you the necessary background of information which it is quite essential to have to get an all around picture.

The specific deduction is that it takes an exceptionally high grade or high class industrial bond to command these low yields reflected by these curves. That is true of any curve of high type securities. It takes high type securities to get into the grade that makes that curve. I do not follow the reasoning that that indicates there is more risk involved in industrial than in utility investments. I don't see how I could agree to that from this evidence alone. The mere fact that the industrial bond is not there is what keeps the ordinary industrial bond from qualifying. It is true that my quoted description of an Aaa bond means a bond that is practically free of risk, as nearly as a corporate bond can be made such. Then if industrial bonds cannot qualify as Aaa or Aa or even A in representative numbers, that indicates that there is more risk in industry and it is harder for their bonds to be brought within the specifications for these higher classifications of bonds.

Question by the Examiner.

The Moody averages are straight arithmetical averages and not weighted averages.

Cross-Examination by Mr. Morgan Resumed.

The term "new capital" used in the caption, "Average Price of New Capital" on Chart 6, means newly issued domestic bonds. I think that is explained in the second line of the caption. It says "Moody's Weighted Averages of Yields on Newly Issued Domestic Bonds". That does not mean new capital as opposed to existing capital which is being refunded in the issue. It includes all kinds of new issues of domestic bonds during the whole period from 1921 through 1938. It has to do with railroad bonds, utility bonds and industrial bonds, just like the other charts. The line "F. P. C. Compilation Electric Operating Companies" represents an F. P. C. compilation of electric operating company bond yields. There is no separate segregation for natural gas company yields. I have not made a compilation of the issues included in the various lines, but I should state that Moody's have prepared these bond yield averages

and the logical deduction would be that they have included in the various curves the bonds of any rating whatsoever of companies which they classify as public utilities, railroads and industrials. The line captioned "Composite of Moody's Bond Yield Averages for 30 Public Utility Bonds with Moody's Bond Ratings of Aaa, Aa and A (10 Bonds in Each Group)", has been superimposed on this chart to show what the composite average of Moody's bond yield averages is for 30 public utility bonds of the character indicated. The other curves on that chart represent weighted averages of yields on newly issued bonds of all descriptions.

1565 During these last few years there has been a perceptible decline in the bond yields indicated. They began to fall in 1934 and they have continued toward lower levels, rapidly during 1934, less rapidly in 1935, and have tended to level off in 1937 and 1938. I think by reference to Chart No. 1 it can be seen, pretty generally, that the trend has been downwards for bonds of higher ratings and that would be the explanation that I would offer for the rapid decline in the yields of bonds during that period. That is the reason for superimposing this curve which shows that the trend pretty closely conforms to the trend for 30 public utility bonds of Aaa, Aa and A rating in each group. In other words, the financing through bonds during those years has been overwhelmingly of the high type bond character. I think the circumstance that a very large proportion of the financing was of a refunding character has an effect which cannot be ignored. Of course, we all know that the majority or the major portion of new financing has been refunding during this period. It has been refunding of the very highest type of bonds. During this time I would say it is less costly to a company to refund an existing debt, where there is an earnings experience and property coverage behind it, than it is to go out and get new capital.

I believe it is true that it is more costly to go out and raise capital for the purpose of developing or constructing an industry from scratch or as a new enterprise, than it would be to get additional money to expand an existing enterprise. You ask if I think that the course of these yield curves during these four or five years is a very safe index to the proper cost of money for the natural gas pipeline business. That answer will have to be broken down, because it will depend upon the question of whether the natural gas pipeline company in particular is a well estab-

lished company or one that is just proposing to construct a pipeline at this time.

You ask if it is my theory that a company which is well established is entitled to a lower return on its investment than one which is just starting out in business. (Objection by counsel to Illinois Commerce Commission overruled.) My theory is that every company in the public utility business should be allowed a fair rate of return, and a fair rate of return must take into consideration all circumstances in individual instances. I testified this morning that a company which was established in business could obtain money at a lower rate or at a lower cost than one which was just starting out in business, and that that would have to be taken into account in applying the facts reflected by the curves in Chart No. 6 to the financing problem under consideration. The mere fact that a company is starting in business does not entitle it to charge rates which represent a cost of service to the consumer at more than its real value.

I think that the rates of companies in the same general type of business should be considered, rates in the same general area, and that some judgment based on such an investigation would have an influencing effect upon what might be considered a proper rate for the company in question. You ask me to assume that one company is selling natural gas at a price which, when compared with the prices charged by other companies selling the same commodity, is lower, and to state whether I think that circumstance should be taken into account in arriving at a proper rate of return. (Objections by counsel for the two commissions overruled.)

My answer to that is that a mere difference in rate
1566 levels does not afford a basis for determining whether a rate of return is fair or not. If in the case in question the rates were based on operating expenses that were reasonable for the type of operation involved and the type of operating conditions involved, a difference in rate levels would not express a differential in favor of one company as against another. My answer just before the last one, taken in conjunction with the underlying basis upon which rates are predicated, I think fully answers the question that was directed to me.

You ask me to assume that two pipelines are coming from the same gas field, are of the same type and have the same cost, and are built to the same general vicinity where the gas is marketed or to be marketed; that one of them has been in existence for several years and has an earnings

record which will enable it to borrow money at a lower rate than the other company which it is assumed has just been completed and just launching out in the business; and you ask me to state whether or not I think one of those companies should have a higher return than the other. In this connection you state that you are assuming that they are in the same situation in every respect, except that the one is just launching into business and therefore is not in a position to borrow money as cheaply as the other. It makes a very great difference in my opinion whether or not they are competing companies, because it might not be economical for a company to compete with another company and go to the expense of constructing an enormous pipeline for the sole purpose of competition with an associate company, and if it is not economically feasible there wouldn't be any proper basis upon which to establish rates for an enterprise that was not feasible. If there is room for both of them so that each one is supplying a part of the needs and I am examining the rate of return for both of them I don't think there would be any distinction whatsoever in the rate of return to which each would be entitled because one was in a position to borrow money at a lower rate than the other. You ask me which cost I would take in weighing the cost of money as an element entering into the proper rate of return as between the cost to the well established company and the cost to the company just launching into business. (Objection by counsel for Illinois Commerce Commission overruled.) I think it would be necessary to predicate the weight upon the reasonable value of the services. A company which commenced a project such as you have outlined would be well aware of the fact that a neighboring company was already in existence and operating; and it may be presumed that very careful studies would have been made of that company's experience before the project was undertaken.

Now, the mere fact that this second company is newly organized should not operate to produce rates that are not reasonable in the light of operating conditions and operating expenses. If the cost of capital for the second company is excessively high in comparison with that of the established company it would appear to me that the cost of capital to the extent that it is excessively high should be ignored. I don't believe I can give you a categorical answer which is based purely and simply on the difference between the cost of money in the two cases. I think it would have to be

determined upon the basis of what kind of a capital structure the new company was going to have and what its proposed or expected earnings were. There are very many considerations involved. I don't think I can give you any categorical answer. There are too many unknowns in the question. We don't know what the proposed earnings are. We don't know what the proposed operating expenses are unless you are assuming in this example they are to be exactly the same as those of the first company. If the capital investment, operating costs and risks, since they
1567 come from the same place to the same place, are the same, and everything, including the capital structure, is the same, except one is new and the other is old, and except one is on an earning basis and other is not, and the well established company can get money at a lower rate than the one just launching into business, I would say that if the new company cannot secure capital at what is considered a reasonable cost, it ought not to go into business.

A company is entitled to a rate of return, as I understand it, on the basis of its needs. Those needs are based upon rates sufficient to assure confidence in the soundness of the utility, to obtain the required capital and to maintain its credit standing. If in view of all the circumstances surrounding the particular company it is found, as you have stated as a premise, that the cost of capital is reasonable, then my answer is that if all expenses and costs are reasonable, and in the light of all the circumstances, then the particular circumstances of the individual company should be the basis on which the rates should be established.

Just what circumstances the Commission would take into consideration in making its final decision is something I cannot prophesy, but I know it would be necessary for it to take into consideration all the circumstances. I have no basis for deciding the answer to your question as to what the Commission would or might do. I don't know whether it would be proper for me to answer as to what the Commission ought to do. I still think it involves a prophesy. I see you have asked in that question for my judgment. Well, this is a hypothetical case, I think you will have to admit that, and I don't know whether in the brief time I have in which to answer the question I could give that subject serious enough consideration to give an answer that would in all purposes be a just answer.

Yes, I have brought here a lot of data and charts and curves showing the cost of capital obtained through bonds,

and in one place through preferred stocks, of electric utility companies. I have stated I brought them here because they were relevant and pertinent to an inquiry on rate of return. I have stated what the elements to be considered in arriving at a proper rate of return are in my judgment. You now want me to tell you whether I am talking about cost of capital to an established institution or cost of capital to an institution that is just being launched. Considering all circumstances, reasonable cost of capital, reasonable operating expenses, and an economically feasible project, the cost of the service under such circumstances should be the reasonable rate in view of all these circumstances. I don't know that I can get any closer to an answer to your question.

I have said that in order to prevent injustice the rates charged by others under similar circumstances and similarly situated was an element to be considered. I said it had an influencing effect. I should think it should be considered. It is something that has to be taken into consideration. I was speaking of the rates and not the rate of return.

When a group of men are considering the building of a natural gas pipeline, they are confronted with the problem of raising capital with which to buy that pipeline and the equipment that goes with it and the reserves that are
1568 necessary to sustain it. They are confronted with the necessity to raise that money as a business which is being launched. You ask whether or not I think the rate of return should be fixed on a basis of the cost of capital for that pipeline as it was being built, or what they could go out and borrow the money for at the time they had the pipeline in a completed condition as far as cost of capital is concerned. If we assume that it has a contract for a specific term with a distribution company, just like it would have had it been there for 10 years and was operating under those circumstances, it would seem to me in that case that the cost of capital to that company would be fairly comparable to that of a company that was already established.

In a rate of return inquiry under those circumstances, that element which I have denominated cost of capital would be one of the elements that would have to be considered. You ask me whether I consider the cost of capital to him as that cost which he incurred as he built his pipeline, which he has just completed, or as what he could go out and borrow money for to retire his securities or part of them. I think you have to deal with the facts as they exist. Just to

make it more specific. If they borrow money to construct this pipeline, you would have to deal with the cost of borrowed capital as an element to be considered in determining a proper rate of return. I did not imply that you would have to accept the cost incurred in getting the capital to build the pipeline. You have to take it into consideration. If he went out and did the best he could and got it at as low a price as possible that is another thing altogether.

I don't know whether I can clear this up or not, but I will try in this statement. I think I have already stated that if the cost of money is reasonable, if the cost of operating expense is reasonable, if all the factors and circumstances indicate that the cost of capital is reasonable, then that would indicate that the cost of capital is a factor that should be considered in determining what constitutes a proper rate of return. I assume when you say cost of capital to an established institution that you are referring to what might be called current costs or historical costs. If I understand your question correctly, it is the cost of capital to the company that is going into business that I have been discussing. I don't know that in every instance it could be said that new capital being raised for the purpose of launching into a new business costs more than capital raised through the securities of an established business.

In connection with refunding issues I said that the average price of new capital indicated by Chart No. 6 was quite predominately influenced by refunding issues. That would be current capital costs to established companies. That is an element in it, at any rate; and if we assume, for the purpose of argument, that the capital cost for a new company is larger to some extent, my answer is that if it is to a reasonable extent it would have considerable influence in determining what the proper rate of return should be for that new company. As between the new company and the established company, if a reasonable cost, all things considered, is higher to the new company, it would seem a fair statement to make that the rate of return for the new company should be largely influenced by the cost of capital which it incurs, with all of the qualifications that I have previously made. That might conceivably lead to a higher price for gas for the new company than for the old one.

1569 *Questions by the Examiner.*

Yes, it is fundamental in a rate of return study that what you are attempting to find is a rate of return which will offer an inducement; but that has to be qualified. It may not be any rate that may be required to induce capital. It has to be a reasonable project. All the circumstances have to be reasonable. Other things being equal and confining it to this one element that is now under consideration, the inducement allowance should take that factor into consideration. I have already stated that one of the principles is that the return should be sufficient to assure confidence in the soundness of the utility, to obtain the required capital and to maintain the utility's credit standing.

Cross-Examination by Mr. Morgan Resumed.

It is conceivable, surely, that a rate of return which will induce investors to enter a given regulated business, or attract capital to that regulated business, if it has to do with an enterprise just being launched, might be different than it would be five years later after that same business had a record of earnings behind it.

You ask whether I think that men would be attracted to put their money into a business by the promise of a rate of return which would get their money into the business, if they thought that as soon as they got it in the business and got the business going, the regulatory body would turn around and take away from them a part of the return which they expected when they put their money into it. (Objection by counsel for the two Commissions overruled.) I think it is fundamental that investors, intelligent investors, realize that utilities are subject to regulation, and, therefore, it may be assumed that they have given consideration to the possibilities in the future of rate reduction; but it need not be assumed that the rate reductions referred to would be such as to reduce the rate of return below what would be a fair and proper rate of return. I mean, based on the company's cost of capital and with all other things taken into consideration, there is no apparent reason to assume that regulatory authorities would reduce rates below what is proper and fair. (Objection by counsel for Illinois Commerce Commission overruled.) If the investor's demands were not to be met, he would not be in the situation, presumably.

You ask me whether, in the light of my testimony concerning the comparative yield on refunding securities and the high proportion of refunding indebtedness that is represented in the transactions reflected by Chart No. 6, and my testimony concerning the predominance of high rated bonds involved in the transactions making up those curves, I agree that it would be dangerous to place any substantial weight on the bond yields reflected for the years 1934 through 1937, on Chart No. 6. I don't know that I have given any specific weight to Chart No. 6. I believe the facts in Chart No. 6 deserve complete consideration in the circumstances you have mentioned.

You ask whether or not, in arriving at an over-all rate of return for a natural gas pipeline company, which
1570 I have stated is not represented on Chart No. 6, I would have to exercise very special care in order not to be steered in the wrong direction by the course of those curves for those last four years. I hesitate to answer that by a simple "Yes", because I don't think it would be so. Certainly the chart indicates a trend in the cost of bond money; and to the extent that it does indicate a trend it might be reasonably imputed that the trend of money for established enterprises, which, of course, reflects market conditions, would likewise be reflected in the cost of money for even a new enterprise, because the cost of a new enterprise is based on market conditions.

I am familiar with the study entitled, "The Problem of the Rate of Return in Public Utility Regulation with Special Reference to the Long Lines Department of the American Telephone and Telegraph Company", conducted by the staff of the Federal Communications Commission. I have referred to it on numerous occasions and frequently consult it. I quoted from it yesterday in stating the ten elements to be considered in arriving at a proper rate of return, not from this volume but from another volume of the same study.

I am familiar with the source of the figures at the top of page 55 of the volume above mentioned. Those figures are taken from Moody's. In connection with the table shown at the top of page 55, there was a chart in Moody's just like my Chart No. 6 except that it covered a different period. This tabulation appears to cover a period two years less than the period covered by my Chart No. 6. It has an added column there, "Preferred Stocks". The figures are

in the same general section of Moody's and are undoubtedly under the same caption.

You ask whether or not I agree to the following language appearing in that study of the F. C. C. on page 55:

"Table 1 shows that the annual average yield on all newly issued public utility bonds varied between five and six per cent during the period 1923 to 1930, inclusive, and declined to an average of 3.84 per cent for 1935 and 3.55 per cent for 1936. This comparison of the costs incurred in two relatively normal periods suggested a marked decline in the cost of secured capital. The data may be misleading, however, unless their composition is carefully analyzed."

I think you have to analyze all statistics, including these, if you are going to obtain any benefits from them.

I have, myself, stated in substance and I agree to the next statement you have read from the same study, as follows:

"In the first place, a much larger proportion of the bonds issued during 1935 and 1936 were for refunding purposes than was the case in the earlier period."

That is true also for 1937 and 1938.

You then ask me if I agree to the following statement from page 56 of the same source:

1571 "Table 2 shows that the total volume of issues during 1935 and 1936 was comparable with the volume during the most active years of financing prior to 1932, but that the proportions of refunding issues were greatly different. During the earlier period, utility bonds were sold largely to finance extensions and improvements, as is indicated by the fact that from 1923 to 1930, inclusive, the percentages of new funds varied from 60.6 to 90.8. In 1935, however, only 6.7 per cent of the total bonds issued were for new capital, and in 1936 the proportion was even smaller."

I agree to that statement.

I also agree that the following statement which you have read here is largely true:

"It is probable that, in general, the cost of capital to replace funds already committed to a particular enterprise is less than would be the cost of an equivalent amount of additional capital."

There may be exceptions, but I think I have already stated that in effect.

I also agree to this statement in the study from which you are reading:

"Refunding does not represent an additional demand for savings."

I agree also with the following statement read from the same source:

"Furthermore, when refunding takes place, a definite earning experience is available for the information of the investor, and the uncertainty is less than where the same utility proposes to expand its productive activities in order to serve new segments of the market."

I agree also to the following statement from that source:

"The change in quality of the securities issues has been even more important than the decline in the proportion of new capital. Table 3, which is limited to new and refunding bond issues of operating companies, shows the percentage distribution of bond issues by the Moody's rating first available at the time of flotation. The greater proportion of the issues were in the A and Baa groups during the years prior to 1929, but the shift toward the higher ratings has been so pronounced that 79 per cent and 65 per cent of the total volume were of Aaa or Aa rating in 1935 and 1936, respectively."

I agree to the next three paragraphs read from the same study, as follows:

"The preference of the investor for bonds of higher quality, and the ability of corporations with the best credit to refund, is in part responsible for the downward movement of the index of yield on newly issued utility bonds.

1572 "If this index were plotted on chart 4, page 62, it would fluctuate during 1926, 1927 and 1928 in a position between the yields on Moody's samples of outstanding A and Baa bonds. During the recent period of renewed financing, the index would fluctuate above and below the average yield on Moody's Aa bonds. The trend of this index of yield of offering prices of new issues illustrates the dangers inherent in the use of averages.

"Table 1, page 55, also includes Moody's index of yields on newly issued preferred stock. During much of the period, the volume of preferred stock financing was so small that the averages do not possess much significance."

That last paragraph has to do with the early part of a period mentioned here, which is prior to 1936, and to

that extent I agree with that observation. There have been a considerable number of issues of preferred stock since 1936. They were probably largely refunding issues in order to obtain lower dividend rates.

I agree also with the statement from the same source above referred to, reading as follows:

"Nevertheless, it may be observed that the differential of yield on preferred stock over yield on bonds tended to average about one per cent."

Redirect Examination Interposed by Mr. Slaff.

I agree with the statement contained on page 61, which you have read, from the same source as that from which counsel for defendants has been reading, as follows:

"Regardless of the long-time trend of interest rates, it is apparently that during the past few years it has been possible for utilities, especially those with the best credit rating, to secure large amounts of new and refunding debt capital at very low prices, and there are indications that this situation will continue for some time in the future."

Cross-Examination by Mr. Morgan Resumed.

The statement Mr. Slaff has just read is no more than I have already stated from my charts here.

Questions by the Examiner:

All the data on Chart No. 6 is taken from Moody's except the F. P. C. compilation. The industrial bonds, railroad bonds and public utility bonds shown on Chart No. 6 are not the same bonds as those listed in connection with the previous charts. The bonds shown on Chart No. 6 are newly issued bonds and they are not the same at any two dates or during any period.

1573 *Cross-Examination by Mr. Morgan Resumed.*

You point out that at page 7871 I stated: "Chart No. 6 shows the average price of new capital as indicated by Moody's weighted averages of yields on newly issued domestic bonds of industrial corporations." The use of the term "average price of new capital" may be in-

accurate. I have used the terminology that was found in Moody's manual and that would explain why I used that caption. Of course, as I pointed out before, the caption immediately following that has the effect of qualifying it, so that I do not think it is really misleading if you look at and study the chart. The terminology "average price of new capital", as I have just stated is a terminology which was devised by Moody's, and for which they have given a definition in their manual, and I have given that definition in my testimony. When I speak of the "average yield to maturity on newly issued bonds," I mean the yield to the purchaser of the security. The terminology "yield" is generally understood to mean the yield to the purchaser.

In my Schedule No. 7, pages 1, 2 and 3, and Schedule No. 8, pages 1, 2 and 3, I have the figures which are shown in curve form in the heavy line near the lower right-hand corner of my Chart No. 6, except that Schedule 8 goes beyond the chart. That schedule goes into 1939 and the chart ends in 1938. The back-up for that part of the curve or chart which is identified by the words "FPC Compilation Electric Operating Companies," is shown on pages 1, 2 and 3 of Schedule 7.

I picked electric companies in adding to Chart No. 6 for the reason that in so far as natural gas companies were concerned, it was understood that there was to be another exhibit prepared and it was thought desirable to have some relative information on this subject concerning electric utility bonds. I think electric and gas utilities exhibit very similar characteristics. The analogy is not primarily between pipeline companies as such and electric utilities; but it is an analogy between the natural gas industry and the electric utility industry. It is true we are concerned in this proceeding with natural gas pipeline companies as such, but natural gas pipeline companies are certainly dependent upon natural gas distribution companies for the disposal of their product.

As I have just stated, we have a separate section devoted to natural gas statistics and securities and it didn't seem necessary to repeat that information in this study. You ask in what exhibit I have made a comparable study of gas utilities. I don't know if it is comparable in every detail, but certainly, in general, Exhibit 186 gives a picture of the natural gas industry that is somewhat similar

to that shown for the electric utility industry here. I am referring to all of Exhibit 186. I have made no detailed study of Exhibit 186, but from the testimony I heard concerning it, my understanding is it included pipeline companies, perhaps one or two fully integrated companies, perhaps one or two companies which owned pipelines and also producing fields. I am not trying to tie myself down specifically. As I stated, I am just trying to give you the general impression I got from listening to the testimony.

You ask if, as a matter of fact, I think gas companies engaged in the distribution of natural gas are closer in their relation to the natural gas business than are utility companies engaged in the distribution of electricity. If you mean physically closer I would say natural
1574 gas distribution companies are more closely related.

That would be true also of the artificial gas company. Very often the artificial gas company forms the initial market outlet for the natural gas pipeline at the beginning of operations. I know from this record that 90 per cent or more of all the gas that defendants transport and sell is sold to companies who distribute a mixture of artificial and natural gas.

From a financial standpoint I don't know that I can quite agree with your suggestion that it would be getting closer to the natural gas pipeline company if I had used a curve and data concerning gas distribution utilities rather than electric utilities. The general picture regarding electric utility bonds and securities is general information about a business that is similar in that it is a utility business. I think it is relevant, pertinent and necessary to show the facts and figures concerning the yields on bonds of both electric utilities and gas utilities. I didn't put the gas distributing utility figures in for the reason the exhibit on natural gas securities was intended to cover the field of natural gas pipeline companies; and I don't know that there is any closer relationship from a financial point of view between gas distributing companies and gas pipeline companies than there is between electric utility companies and gas pipeline companies.

You ask me if it would not be more logical, if I am going outside the pipeline companies and relying on this orientation line of testimony presented in Exhibit 185, to put in some curves and data concerning the bond yields of gas distribution companies rather than electric utility

companies. My answer is I don't think so from a financial point of view. Not having attempted to do that I can't say whether I would have gotten a different result or not. I do know there is some evidence of record already regarding gas company bonds. I do not know whether the electric utility business is the most prosperous of all the utility distributing businesses. Only two commodities of that nature are being distributed, electricity and gas. If that is the comparison that you are making, I couldn't answer that question without making a more detailed study.

In connection with my discussion of Chart No. 4, I agreed this morning that the bonds listed in all four of these classes are preponderately electric utility bonds. It is true in many instances the companies also have gas properties and distribute gas. I did say they are preponderately electric. Only one gas company is shown in the whole list, Peoples Gas Light and Coke Company, and it has the lowest rated bond of the four ratings represented in the group. You ask me if that isn't an indication that there is a preference among investors for the type of security that the electric utility business can offer rather than for the type that the gas business can offer. I wouldn't like to make a yes or no answer to that. It does happen that natural gas company bonds have not fallen within the three highest rating groups; but, as to the investor's preference for electric utilities, I think it is fair to say that the electric utility industry is older than the natural gas industry. You state that you are not talking about the natural gas industry necessarily. If you are speaking of natural and artificial gas, it would appear to indicate that there was some preference for electric utilities and telephone utilities. Without a great deal of study I wouldn't like to answer your question
1575 as to whether or not electric and telephone utilities are able to offer a higher rate or grade of securities than the gas distributing utilities. It might be there are many artificial gas company bonds which carry ratings of Aaa, Aa and A, but without having made any particular search I would not be able to say. They have not made this list, I will grant that.

Cross-Examination Interposed by Mr. Booth.

It is true that Sioux City Gas and Electric Company bonds are represented in that list. I stated that in many instances companies were not solely electric companies, but were engaged in electric and gas operations. In the Aaa list there are two companies that are engaged partially in gas operations, the Cincinnati Gas & Electric and Consolidated Gas, Electric Light & Power of Baltimore. Under the Aa rating there are two companies, the Louisville Gas & Electric and the Pacific Gas & Electric. I don't recall whether Consolidated Edison of New York is also engaged in gas operations. I don't know whether the financial standing of the Peoples Gas Light and Coke Co. may be partially affected by some of its financial dealings when Mr. Insull was in charge of the company, before he left in the late '20's or early '30's. Its bonds have a Baa rating. I understand that there was a connection with the Insull interest, but I haven't made a study of that particular situation.

Cross-Examination by Mr. Morgan Resumed.

The Commonwealth Edison Company was also connected with the Insull interests. Its bonds are in the Aa class. I have made no study of that Insull situation. The only difference, so far as their connection with Insull was concerned, between the two companies last mentioned in that Commonwealth Edison Company is an electric utility and Peoples Gas Light and Coke Co. is a gas utility. Mr. Booth's correction did not bring out anything that I had not already said. I stated some of these companies were distributing gas, but that they were predominately electric and telephone companies, with the one exception of the Peoples Gas Light and Coke Company which sells only gas.

In all of this mass of refunding that has been done in the past several years, I believe it is true that it was largely among telephone and electric utilities. I can't answer off-hand how many gas companies have refunded their indebtedness and taken advantage of this low rate that goes to higher class securities. I have not made a detailed study and would not answer definitely, but I would assume that there have been comparatively few.

The purpose of this refunding financing has been to obtain cheaper capital. It is a fair inference in the majority of instances that if they could have done so, the gas distributing companies would have gotten a cheaper interest rate by refunding. Of course, there are a great many considerations involved in refunding. Those same considerations, such as call prices, etc., obtain in the case of an electric or telephone bond.

The figures here deal also with bond yields to investors based on market prices, if we are discussing Chart No. 4, for example. In Schedule 7, pages 1 and 2, refer to the yield to the purchasers. That is not synonymous with the cost to the company, ordinarily. In the majority of instances the cost to the company is more than the
1576 yield to the purchasers. In practically every instance there would be the additional cost of financing in connection with their issuance. There is bound to be some expense, of course. In general, you have professional fees and underwriter's spread. The underwriter's spread varies considerably, from around two points to three points, depending upon the circumstances. Two points and up would be a fair statement of it. It might be as much as three. Two would possibly be the minimum. It all depends upon individual circumstances, but probably two per cent or thereabouts is customary. There is also the expense of printing and engraving and the payment of registration fees. By printing and engraving I refer to the printing and engraving of certificates, bonds and coupons. By certificates I mean the certificates of stock, or the securities themselves. There is also some preliminary printing to do. There are taxes and fees of one sort or another. The mortgage expense is also involved. I think that covers the field in general. I have said professional fees and services, printing and engraving. I think that covers the prospectus.

The professional fees cover legal services, accounting services and engineering services in general in preparing and presenting the prospectus and certificate of registration. Hearings before the Securities and Exchange Commission are involved. Also involved are engineering studies, geological studies, accounting studies and legal services in connection with natural gas companies. The geological study is special, but would apply to natural gas companies. I don't know just how many hearings would

have to be had before the Securities and Exchange Commission. There is usually at least one. I assume there may be other hearings or informal appearances for all I know. I have not attended any of those. You are asking me something I can't answer definitely when you ask if these hearings are not held at Washington. I know that hearings are held at Washington, but whether all of them are held there I couldn't say. I don't know whether these hearings often extend over months. I would not like to make a general observation concerning the delay in the issuance of securities without more close connection with such matters.

I will grant that if there is a refunding operation and the bonds are printed and registered, the interest starts then ordinarily. The bonds that are to be refunded are also drawing interest until they are paid off. There is sometimes a double interest period in there. If the debt to be refunded carries a provision that the bonds can only be called by the payment of a premium, which is not an uncommon situation, that premium is generally considered a part of the cost of capital obtained in the refunding operation. You ask if all of these elements which have been mentioned here, when added together, often increase the cost of money over the yield to investors in per cent of the yield. I hesitate to say—to use the word "substantial". My recollection is, from reference to the study by the Federal Communications Commission, that, in general, on your bonds you could add approximately two-tenths of one per cent to the yield to purchasers to arrive at the cost to the company. That is the average situation. There may be instances when the cost greatly exceeds that, depending upon the company, the type of security, the type of debt, etc. I have agreed about the danger of using averages. We have to look behind averages.

1577 Schedule No. 8 shows the yield to purchasers of electric utility bonds sold in the period January 1 to August 31, 1939. That is the same study as that reflected by Schedule No. 7, except that it brings it on down through August 31, 1939.

Schedule No. 9 shows the cost of money and yield to the public of electric utility preferred stock sold in 1935, '6, '7, and '8. I don't know exactly what proportion of that preferred stock financing was refunding as opposed to new issues. It was largely refunding. This is brought on down.

in Schedule 10 to include the month of August, 1939. The issues are arranged alphabetically there. It does not show the cost to the company. It shows only the yield. The average shown here in Schedules 7, 8, 9 and 10 are weighted averages.

On page 7874 I stated in substance that the rapid decline in the price of new capital, particularly noticeable since 1934, suggested that the decline could be attributed not only to the course of the bond market itself but also to the quality of the offering. I was talking about bond yields and not the price of new capital on an overall basis.

Chart No. 7 has to do with wholesale commodity price indexes. It deals with the prices of farm products, foods, building materials, chemicals and drugs, fuel and lighting materials, hides and leather products, house furnishing goods, metal and metal products, textile products and miscellaneous. It is divided into the classifications of finished products, raw materials, and the composite of products. Although the classification semi-manufactured material is not shown on this chart, there is another such classification. These curves represent prices of raw materials, finished products, and all commodities. My figures indicate that the average monthly price for finished products index is 81.5 for the year 1938 and the first six months of 1939, and 79.8 for the last half of 1930 and the year 1931. In my judgment this chart has relevance to the subject of this inquiry, namely, the proper rate of return for defendants, in the sense that it is a part of a picture of economic conditions. Among the elements I mentioned to be considered in the subject of rate of return was that of general economic conditions. I think wholesale prices are indicative of general economic conditions. I didn't put in here the gross volume of commodities sold at wholesale because I think that it is impossible to cover every conceivable line of inquiry that might be indicated by any one of these charts. The answer is simply that we took indices that were representative. A comparison of the volume of commodities sold at wholesale, stated in terms of dollars, might be at least as good an index to economic conditions as a schedule of prices of commodities at wholesale. I am not denying that at all. I am just saying that this is what we have selected, and for the purpose we believe it is sufficient.

The two principal items of cost in connection with the operation of a natural gas pipeline other than the purchase of gas are materials for maintenance and labor. (Objec-

tion by Counsel for Illinois Commerce Commission overruled.) In dealing with the subject of commodities I have shown the price of commodities at wholesale. It is true that over in my next chart, No. 8, I deal with employment and payrolls, not on a price basis, but on a volume basis.

Employment is based on number of employees, and
1578 payrolls on dollars of payrolls expressed in the form of an index. The production, as shown on that same chart, has to do with the volume of goods produced. I mean it is volume in the sense of amount of production, but certainly not the addition of several units of quantity.

There have been changes in the wholesale commodity prices since the middle of 1939. I can give you some later figures. Schedule No. 11, page 1, price for July, 75.4; August, 75; September, 79.1. I have to skip October, although I have weekly prices for the week ending November 4, which is 79.3, and the week ending November 11, which is likewise 79.3.

Referring to Schedule No. 11, page 2, for July 67.8; August, 66.6; September 72.6; skipping again to the week ending November 4, 72.3, and the week ending November 11, 72.5.

Passing to page 3 the figures are: July, 79.2; August, 79.1; September, 81.9; skipping October; week ending November 4, 82.6 week ending November 11, 82.7. I think I may be able to give you some weekly prices in October for the last three weeks if you think that would be of assistance.

My revision of Chart No. 8, which is Exhibit No. 191, shows there has been a very sharp upward rise in industrial production between August and September. There have been rises during September in both employment and payrolls. Chart No. 8 portrays the number of factory employees. I would say that it represents an index of wage earners and not employment hours. It is an index of the number of employees. I have no data that indicates the comparative number of man hours to use for a curve indicating the man hours of work. You ask which I think would be the better index of the economic conditions, the number of hours work performed or the number of men who are employed. I believe from my studies in this connection that some discrimination was used in regard to accepting the number of employees as such. I mean, I believe that some consideration was given to length of employment period involved, and so forth. In other words,

an employee who worked one hour in one day I don't believe would be included in this index to the same extent that an employee who worked the full day would be included. Some adjustment was made for that in my opinion. That is my impression but I would be glad to verify it and let you know what my findings disclosed.

As to whether this is a true index of the number of men employed, in the light of my last statement, that depends upon what you mean by true. I shall have to look into that matter and give you my finding. That is all I can say at this time.

If it be assumed that 100,000 units of some commodity are produced through the employment of 100 men for a week, each working, in order to get the work done, 40 hours a week, that would be 4,000 hours of work. I think there would be a difference in the economic situation if you put 200 men on the job and let them work half as long, because each man would be getting a smaller amount of pay.

I am willing to rest on the judgment and discretion of the United States Bureau of Labor Statistics as to the validity of the methods employed by them in setting forth what they believe is a fair and accurate employment index. The objective of that index, it must be assumed, is simply that of affording information for the knowledge of the citizens of the country. I don't believe you would have to know what the Department of Labor had in mind when they made the curve, unless you know what enters into the curve, before using it as a guide to economic conditions. I believe the curve speaks for itself; and I believe when we are presented with figures by a government source which gives them the appearance of representing economic conditions, I think we can accept those indexes without question.

1579

Questions by the Examiner.

I have a bulletin with me issued by the Department of Labor, which accompanied the publication of this chart, describing just what they were doing or what they had in mind. The name of the bulletin is "Employment and Payrolls", and these bulletins are issued monthly. This bulletin belongs to our library.

Cross-Examination by Mr. Morgan Resumed.

You ask whether Exhibit No. 191, which is a revision of my Chart No. 8, indicates whether the economic conditions are better or worse at the present time than in the year 1925. It is assumed that the persons attempting to read these charts would have some acquaintance with business in general, and these figures have not been adjusted for a long-term trend. You would have to keep that in mind in interpreting the chart. It is common knowledge that when you use an index as of any year, you have to look behind statistics and see what it is. You want me to state what the chart indicates as to the comparison between the economic conditions of 1939, at the time these curves terminate, and the year 1925. I think that the common sense approach to this matter is essential; and I think that the chart manifestly shows that from 1925 to 1929 there was an increase in employment; and even though you do not have your long-term trend shown, I think the figures still serve to indicate what has been happening here in the past fifteen or twenty years.

It is not true that my appraisal of this chart would be to say that it indicates that economic conditions are better in 1939 than they were in 1925. I do think that a study of this chart, together with all the other charts in this section, would serve to indicate economic trends. I do not know that you can get away from the fact that the entire range of elements here points to the fact that economic conditions have to be considered, general conditions affecting all business should be considered, enlightened judgment must be used in each case. This would form the basis of enlightened judgment. The proper rate of return is a flexible concept and would naturally be so, because of changes in economic and financial conditions. All the way through you have that same relationship of the exhibits to the principles involved. I think it is implicit in the elements I have mentioned, that rate of return is dependent upon economic conditions except as they assert themselves in the cost of money.

In Chart No. 9 I am dealing with carloadings, steel ingot production, and building contracts awarded. I believe that refers to the number of cars loaded and there is an index based on that. There are other indices of carloadings which are based upon the number of cars, and while the

source in this instance is "The Annalist", I do not
1580 recall whether "The Annalist" mentioned the basis, but we would naturally assume that we were talking about the number of cars. As to whether the steel ingot production figures refer to tons or ingots, I think it makes no difference particularly. Whether I have that information here is another thing.

In the case of building contracts awarded, Standard Statistics publishes this information and it does not state in so many words the basis for it. We have here an index which is published by a responsible statistical organization for the purpose of being used as an index of economic conditions and that is why it is used here.

You ask whether these curves have more than a very remote relation to the subject of this inquiry. I think the same applies in the case of every one of these charts and schedules. They are an attempt to present background of economic information which indicates trends and to that extent they are valuable.

You ask whether or not there were thousand of carloads of scrap iron gathered up in this country, carried by rail to ports and loaded up on ships for Japan and Italy and other countries and carried away during the years 1936 and 1937. (Objection by Commission Counsel overruled.) I cannot say that was limited to the years mentioned there. In any case carloadings is another separate index, from which you could not impute the entire course of economic trends. You ask whether the fact that carloadings jumped up as a result of that activity could make any possible difference in the economic situation except as to those who had scrap iron. Inasmuch as the figures concern economic conditions in general, they are pertinent in the inquiry on the subject of rate of return. Among the things involved would be the number of people employed in loading the cars and unloading them, the traffic provided for the railroads and that afforded the ship owners, people employed in loading the ships and so on. Transactions relative thereto would be involved as well. You ask how these things have anything to do with arriving at a proper rate of return for defendants. So far as economic conditions are to be taken into account and general conditions affecting all business are to be taken into consideration, these are indices which give a background of economic information and, as such, they have pertinence in connection with the

rate of return. In other words, you do not determine the rate of return for defendants by an economic vacuum. You try to reach out and get a picture of what is taking place and what has taken place and what may be likely to take place.

Naturally it is true that conditions of various industries will not all reach a peak at the same time. Nevertheless, it would be wrong to leave out steel ingot production just because it shows a drop in 1937 as compared with a rise in building contracts awarded. I think it can be said, of course, that both steel ingot production and building contracts awarded dropped toward the latter part of 1937, the difference being that steel ingot production dropped from a higher level; but since that time the pattern of the trend has not been so very inconsistent. The steel ingot production indicates trends in the steel industry; and I think it is a commonly known fact that when the steel industry is in a bad way the rest of the country suffers; and when the rest of the country comes back the steel industry comes back with it.

I think the rate of return for pipeline companies, that is, a determination of it, requires the exercise of
1581 enlightenment judgment, and that judgment has to be founded upon economic and financial facts. You ask when the exercise of enlightened judgment would require an increase or decrease in the rate of return, when the steel ingot business is going down or when it is going up. (Objection by Commission Counsel overruled.) The steel ingot index is an isolated phenomenon of economic conditions. As I have just stated, in considering a proper rate of return you have to take into consideration all facts available that are indices of economic and financial conditions.

You ask why I didn't bring in a curve showing the status of the cattle industry and whether or not such an index would be just as pertinent as the steel ingot curve. It would be. If I had put that in it would probably have been just as pertinent; but you cannot put all the wealth of indices in existence into a chart if you can find some which appear to reveal trends as they occur. I would be inclined to feel that a curve showing the production of cattle in this country would show the same trends as the steel ingot production curve to a certain extent. I am inclined to feel that that might be a possi-

bility. They might be the same, but without making an examination I could not say they are the same.

You ask whether or not, if such indices are the same, defendants should be entitled to more money or less money in 1939 than they were in 1931. (Objections by counsel to the two commissions overruled.) I am still of the opinion that you cannot isolate any one of these indexes and expect it to represent in and by itself the course of economic trends. I said the steel ingot industry index was one of the indexes. You ask whether a higher or lower rate of return should be allowed a natural gas pipeline company when economic conditions are bad generally than when they are good. There would have to be a great many facts known to make such a decision. You have got to see how the changes in economic conditions have affected the operations of the pipeline as to the cost of rendering the service, or producing and selling the commodity, or financing its operations, and those other elements I have said are proper to be considered in arriving at a proper rate of return. You also have to find out what has happened to the consumer. You ask whether I mean to say that the date of return should be reduced because the consumer may find it less convenient to pay. I mean that if, because of poor economic conditions, the revenues of a public utility are decreased and some attempt is made to increase rates, which the consumer is not in a position to pay, that the utility has got to suffer along with the rest of the business in the country. I mean the public has a stake in this besides the utility.

You ask what Chart No. 10 has to do with the proper rate of return for defendants. I think my answer to the last question is pertinent in this connection as well as the fact that here again we have another indication of economic conditions. You ask how I am to apply the difference in economic conditions reflected in Chart No. 10 in arriving at a proper rate of return for defendants. I have not arrived at any such determination, but, nevertheless, this chart certainly indicates something about economic conditions, as well as do the other charts in this section, and, therefore, I would say that it would have to be taken into account in determining a proper rate of return.

This index indicates that the national cash income is higher today than it was when the pipeline was put into

operation in 1931. I don't think you could judge from one set of facts and draw any conclusions that ought to be derived from a great many sets of facts. The use to
which the Examiner and the Commission would put
1582 this chart would be to inform them of economic conditions in general, so that whatever action they took would be taken in the light of known facts about economic conditions. This chart indicates that there has been, since the end of 1933, an over-all and substantial increase in the compensation of employees in this country. I am speaking here of cash income. You ask how that affects the operations of defendants. Increased wages might have the effect of increasing operating expenses of natural gas companies. It is a reasonably fair conclusion to state that it would indicate a trend in the direction of increased cost of labor, although it might not affect that particular industry. There might not be an increase in wages in that particular industry. As a general thing there is a competition in labor among all industries. I don't think there could be a substantial increase in wage scales without an increase in the wage scales of the natural gas pipeline business. I think an increase would eventually get around to the natural gas companies.

You ask whether or not I think it would be more helpful in arriving at a proper rate of return if I had dealt with wage scales rather than the aggregate compensation of men employed and the payrolls, as I have done with these exhibits. It might be that any kind of additional information would be helpful but we have just a limited space to compile significant indexes.

When I was dealing with wholesale commodities I gave the index prices. The trend of prices was reflected by the curves I brought in here. You ask if there is anything of the kind in here when we get over to labor. No, I don't see anything here pertaining exclusively to the natural gas industry. I don't know that I can agree with you that since the Commission must look to the future in determining a proper rate base, that it will be aided more in arriving at a proper rate of return if it has the trend of wage scales rather than the trend of payrolls; because if the labor cost is higher, it goes into operations and the rate of return is based upon a value which is over and above operating expenses. Of course, the operating expenses go on and on after the rate case is over. You

ask whether a definite trend upward in the cost of labor per hour of a man's time is something that enters into the consideration of a proper rate of return. (Objection by Commission Counsel overruled.) I might say that not being an engineer I might not be as fully acquainted as I should like to be with the various kinds of employees engaged in the operation of natural gas pipeline companies; and just what wage scales, if I had them before me, that I could select, I don't know. I have, as a portion of this exhibit, an indication of the trend of wage scales. I believe I may refer you to Schedule No. 23. You ask where in that Schedule No. 23 are the wage scales indicated. In the column under the heading "United States." That gives you the picture for the country as a whole.

(November 29, 1939.)

Chart No. 10 covers all of the national income including income from direct relief, veterans' payments and payments under the Social Security Act. It is intended to portray the amount of income flowing into the hands of individuals and does not include so-called business savings or savings passed into surplus. That chart was introduced as bearing upon the general economic condition.

1583 It reflects the fact that we had a depression which reached its depth in about 1933, that we had 1929 as the peak year in that period, and that since 1933 we have had a slowly but gradually rising trend through 1937, which was the best year since 1929, and that during 1938 there was some recession from which the country appears to be recovering in the year 1939. You ask whether that sort of situation, portrayed by this chart, points to lower or higher rates of return as proper in 1939 as compared with 1932. The opinion would have to be based upon all other available facts and not upon the information shown in one of these charts. You have to consider this chart in relation to other facts, both economic and financial, and it is very difficult to express an opinion based on what that opinion would be as far as this chart carries it. If you are weighing a commodity you put the commodity on one side of the scale and something on the other side in order to determine the weight. You want to know whether in weighing this element it points to a higher or lower rate of return for natural gas

companies in 1939 than in 1932. I think there are times when economic conditions are controlling factors in determining a proper rate of return and times when financial factors may be controlling. It isn't that I don't want to answer the question. If Chart 10 shows certain facts you must remember that is one side, one element of a situation. For that reason it is not reasonable to assume that every other element in an economic situation would be the exact opposite of this. Therefore, you couldn't make a decision depending upon this alone. I mean you can't limit a conclusion to studying one single set of facts in any situation.

You ask me what this chart has to do with a proper rate of return unless I can say it points to a higher or a lower rate of return. I haven't arrived at a rate of return in this case. I form no judgment on that point. I form no opinion on the subject and I haven't attempted to weigh the various elements, and this information has been submitted because it deals with economic conditions in general, and as a part of economic conditions in general it is pertinent to a discussion of rate of return. All of these charts were expected to be of some use. I brought this in as one of the total number of exhibits.

This information shown in Chart 10, taken together with all of the information appearing in Exhibit 185, is presented as a means and background of general economic information from which it is desirable to obtain knowledge of conditions upon which a fair and proper determination of a rate of return could be made. You ask whether I am referring in that observation to my statement yesterday, that when times get hard the regulated concern ought to take some of the losses. I don't recall my exact phraseology in the statement yesterday but I believe I said "regulated concerns." I believe I made the statement to the effect regulated concerns can't be expected to stand apart and not share in any of the losses occasioned by or incurred by business as a result of poor depressed economic conditions. You ask whether I think that when times get good they should be permitted to earn more money. I don't think they should be able to earn speculative profits. I think at all times they should be allowed to earn a fair proper rate of return, in good times and bad times. I don't like to tie my answer down to the statement that the proper rate of return depends upon the

cost of money and these other nine elements that I read into the record. I would rather state it in my own way, that a fair rate of return depends upon the consideration of all facts, both financial and economic, in order to come to a conclusion.

1584 I would say that the sum total of all of the charts, tabulations and schedules included in Exhibit 185 point to better conditions in 1939 than those existing in 1933. You ask whether that points to a higher or lower rate of return than in 1933. My answer is that it points to a fair rate of return if it points to anything. I don't know what you mean by the statement that that is the most I can make out of it, but a fair rate of return is a fair rate of return. It might be a different amount or different percentage, but, nevertheless, it is a fixed concept; and that fixed concept does not change even though economic and financial conditions do change.

Questions by the Examiner.

The data carried into Chart No. 10 was compiled by the United States Department of Commerce and published in the Survey of Current Business. That publication does not in the monthly issues prepare charts, although occasionally in the introductory sense, when a new series is being introduced, they may submit a chart giving a picture graphically of the statistics. The Survey of Current Business comments on these charts. I can refer you to the comments on it if you would like to have them. I have here one issue for the month of November, I believe.

Redirect Examination Interposed by Mr. Slaff.

The Survey of Current Business is prepared by the Department of Commerce for the use of other people, regulatory bodies and other people who have use for it.

Questions by the Examiner.

The broad heading, "Business Indexes", and the heading under that, "Income Payments", appearing on page 19 of the November issue of the Survey of Current Business, are the payments that I used in my chart. We have a caption on page 19 called "Monthly Business Statistics",

in large letters, and that covers the entire series of statistical data published in this magazine. "Business Indexes" would appear to apply to income payments, industrial production, agricultural marketings, world stocks; and there is another caption following that called "Commodity Prices", and another following that "Construction—Real Estate". So it would appear only those four are included directly under that heading "Business Indexes". Whether that should be considered a limiting factor is something I doubt very seriously, because it may be just an attempt to find a convenient terminology for a few indexes which did not fall under any other general caption. The fundamental purpose of these indexes is to enable business men to become thoroughly informed on business trends in general and financial trends. Yes, it always comes back to price insofar as price reflects changes in economic conditions.

Cross-Examination by Mr. Morgan Resumed.

You ask in which direction Chart No. 10 points whether to better economic conditions or not. The chart would appear to indicate that in 1939 conditions are better than they were in 1932 or 1933. You suggest there is
1585 nothing, then, from this chart that would make it necessary to apply the observations I made yesterday that when times are difficult or economic conditions are bad, the regulated company should take its part of the losses. I think that was a fair statement in and by itself. If you are asking whether we are talking about comparing economic conditions today, my answer would be that I have made no such implication.

Entrepreneurial income, as that term is used in this chart, is the income of small business enterprises, not incorporated—proprietorships, farmers. It refers to unincorporated proprietorships as opposed to those who are loaning money, collecting interest, or who own stock and get dividends. It is not entrepreneurial income in the sense that that term has been used here in the record as compensation for enterprise over and above risk premiums.

Chart No. 11 has to do with the natural income and cost of living in terms, first, of the income stated as dollars in the lower curve. The upper curve, "National Income Payments at 1929 Prices", represents the purchasing power of

the income in dollars as compared with 1929. The chart indicates that nearly as much goods can be bought with the present income as could be purchased in 1929 with the income of that year. We are speaking about purchasing power in general. It means that if you have $10 you can buy nearly as much goods with it as in 1929. That would indicate that your income is not at the 1929 level; it has not reached that level yet; but in terms of purchasing power it is almost equal to the 1929 income. I am talking about the national income as shown in Chart 10. As a matter of fact, the lower curve of Chart 11 is based on such national income as shown in Chart 10.

The general interpretation of the words "purchasing power" is that all of the income in the country in 1939 would buy slightly less goods than all of the income in 1929. The cost of living curve has to do with the change in price level of certain commodities which I have enumerated. I enumerated the commodities which go into that cost of living curve at the top of page 7903. It was made up of foods, 33 per cent; housing, 20; clothing, 12; fuel and light, 5; sundries, 30. Fuel and light is 5 per cent of the total. I don't know how much of that is for electricity and how much is for coal or wood. I can't give you the details on that. The breakdown of the fuel and light may or may not be available to the public, but that 5 per cent does include electricity, gas, coal, oil, kerosene, distillate, wood, and we might extend the list of fuels, I suppose. I would not have the slightest idea of what percent of that total 5 per cent is represented by the cost of gas.

Chart 12 is based on "Standard Trade and Securities", published by Standard Statistics Company, and represents, according to the legends, the corporate earnings of 15 utilities, 120 industrials and all classes of railroads. There is no curve on that chart indicating the course of earnings of gas companies.

1586 The 15 public utilities listed on Chart No. 12 are:

American Light & Traction,
American Telephone & Telegraph,
Columbia Gas & Electric,
Commonwealth Edison,
Consolidated Gas, Electric Light and Power of Baltimore,
Detroit Edison,
International Tel. & Tel.,

New England Telephone & Telegraph Company,
Niagara-Hudson,
Pacific Telephone & Telegraph Company,
Peoples Gas Light & Coke Company,
Public Service Company of Northern Illinois,
Public Service of New Jersey,
Twin City Rapid Transit, and
Western Union.

Peoples Gas Light & Coke Company is the only company that is confined to the gas business. It is a distributor of mixed gas. There are one or two others which handle both gas and electricity, including Columbia Gas and Electric. There are five telephone and telegraph companies included. Four companies, namely, Columbia Gas & Electric which I have already mentioned, Consolidated Gas, Electric Light and Power of Baltimore, Public Service Company of Northern Illinois, and Public Service of New Jersey, handle gas as well as electricity. So far as I am aware, the Columbia Gas & Electric group is the only one which has natural gas transportation and transmission facilities.

The term "corporate earnings" means the net earnings before dividends. My understanding is that that means net income before dividends. It is the revenue that is available for dividends.

The upper curve which I have identified as utilities does not have anything to do with the rate of earnings as compared with the capitalization. It is, as I have just stated, net income available for dividends. The net income available for dividends is stated in terms of dollars and not in percentage of the total capitalization. I show, however, in Chart No. 13 the relation of net profits to total invested capital for 21 leading utility corporations. Undoubtedly the earnings of these companies, if they are holding companies, are stated on a consolidated basis, so that the earnings would reflect operations of the system rather than of the holding company by itself. You asked how many of these companies are holding companies. I want to point out that that might not have any relationship to the curve. I believe Columbia Gas & Electric, International Tel. and Tel., Niagara-Hudson, Public Service of New Jersey, and probably American Light & Traction, are holding companies. I did not list A. T. & T. because you asked only for pure holding companies. It operates long lines.

I do not know what proportion of Columbia's total cap-

ital investment is represented by pipeline facilities. I have not the figurse showing the total proportion of that company's income from its transmission lines and production. My impression is that it has very extensive distribution facilities both in the gas field and in the electric field. I assume they own some street railway facilities and other holdings besides their gas holdings. I have made no special study of that company, but that is my impression.

I do not happen to have the figure in mind as to the proportion of the total income available for dividends of Public Service Corporation of New Jersey represented by revenues from gas distribution. I would be glad to
1587 find out some of those things for you. It is my understanding that company is predominately an electric distribution system. I believe that that is true of all of these other companies that deal both in gas and electricity; that they are predominantly electric distribution systems.

I don't think I have said this chart indicates anything with reference to the public's attitude toward risk. I mentioned that it was connected with the subject of investor attitude regarding risk. This chart shows that as compared with industrial and railroad companies, there have been fewer marked fluctuations as extreme as those which you will find in industry and railroad corporation earnings. That would help with reference to defendants in the sense that it shows that regulated companies in this group show fairly stable earning levels. In good times they don't rise to excessive heights, and in bad times they don't drop to excessive lows. That observation I think would be indicative of the industry. I certainly feel that Standard Statistics could fairly be relied upon to present in a chart what it considers to be the best available information indicative of the utility industry.

By "utilities" I mean electric, telephone, telegraph, water, gas—and by gas I mean natural gas and artificial gas and companies engaged in its transportation whether or not they are subject to regulatory authority. Maybe one or two others could be thought of. I include in the category of utilities, in making that observation that their earnings are more stable, the gas business. The upper curve there may or may not be an index of the course that earnings available for dividends in the gas business would take. I don't think it is intended to be specifically an indication of that sort. It is a general indication of utility

earnings. The utilities have been selected by Standard Statistics, published with the caption "'Public Utilities', Not Qualified," and for that reason is no more specific than the term "Public Utilities" specifically.

Questions by the Examiner.

Standard Statistics has bond ratings the same as Poor's and Moody's do. I do not happen to have the Standard's ratings on these bonds. I think Standard Statistics would have the same standards of rating as the others.

Cross-Examination by Mr. Morgan Resumed.

You ask whether I have made any comparison of the source of the incomes available for dividends among the gas distribution companies. I believe there are figures for natural gas distribution companies in Exhibit 186. To my knowledge, the figures for artificial and mixed gas distribution companies have not been put into the record as such. I know that more than 90 per cent of all the gas that defendants transport and sell goes to those who distribute mixed gas. I recall Mr. Smith's statement on his preliminary cross, that the figures shown in his Exhibit 186 do not include the figures for those who purchase more than ninety per cent of your gas, namely, those who distribute artificial and mixed gas.

The gas companies, of course, would be more related physically to the natural gas pipeline companies than would the telegraph or telephone companies. I think the physical relation is the primary way in which artificial and mixed gas companies are related to the natural gas pipelines. I was thinking in my answer of the attitude of investors. I may have gotten astray from the direct purpose of your question. I don't deny that there is a close financial dependence and relationship resulting from this corporate set-up.

1588 Much would depend upon the nature of the underlying contracts as to whether the natural gas pipeline company which must look to the distributor of mixed gas for its outlet is dependent upon the ups and downs of the distributors who purchase that gas. If you mean the extent that the distributing company goes into bankruptcy or something like that, it would have an effect. If the distrib-

utor's market falls off, the volume of gas which the pipeline can sell is directly affected, if there is a provision in the contract covering such a contingency. I am referring to the contract that I mentioned in a general way. I was saying that if there were a contract for the distribution and purchase of this gas that had fixed terms, the dependency would not be so acute unless provision were made in that contract. If that contract only covered a portion of the total valume, then there would be an absolute dependency except insofar as some demand charge or other was concerned. I am not very familiar with the demand charge that is involved in the contract of defendants. I have read something about it, but I mean I wouldn't be prepared to testify about the contract.

My information as to the revenues of defendants doesn't go beyond the year 1937. If there was a falling off in 1938 and a pick-up in 1939, such circumstances would appear to indicate a direct dependency of the pipeline company upon the vicissitudes of the distributing company for its outlet.

Questions Interposed by the Trial Examiner.

In connection with Chart No. 10, the question directed to me asked in which direction the chart indicated; whether toward better or worse conditions. I believe that is the substance of the question. I answered that I did not understand that question; and my reason for saying that was because I could not tell whether the question related to a better direction in connection with rate of return or in connection with economic conditions. I would have to have that point straightened out before I could proceed to answer.

Cross-Examination by Mr. Morgan Resumed.

I am aware that such bulletins as Statistical Bulletin No. 36, entitled "Annual Statistics of the Manufactured Gas Industry in 1938," by Paul Ryan, Chief Statistician, are published; I am not familiar with that particular document. I have never had occasion to examine Exhibit 179. I seem to recall that such a bulletin was offered in evidence. This bulletin No. 36, about which you asked me, is of the same general character as Exhibit 179, except that it applies to the manufactured gas industry, as I understand it.

(At this point Counsel for defendants produced the doc-

ument entitled, "Annual Statistics of the Manufactured Gas Industry in 1938, Statistical Bulletin No. 36, October, 1939, Paul Ryan, Chief Statistician" with the request that it be marked as an Exhibit. At the direction of the Examiner, the document was marked Exhibit No. 194 for identification.)

In the foreword on the first page inside the cover of Exhibit No. 194, in the second paragraph from the bottom, it is stated: "Companies selling mixed manufactured and natural gas are included in these data." On page 14, in table 6, are found the figures from the years 1929 to 1938, inclusive, showing the net income available for dividends and surplus in the manufactured gas industry in the U. S. In the light of the foreword, that would include those companies which are distributing mixed gas. That is the
1589 same sort of figure that is reflected in my Chart No. 12 where I am dealing with the net income available for dividends and surplus. The total amount of net income available for dividends and surplus in the years 1929 to 1938 inclusive are:

1929	$82,204,000
1930	83,119,000
1931	82,342,000
1932	68,332,000
1933	49,136,000
1934	35,280,000
1935	23,769,000
1936	25,314,000
1937	23,858,000
1938	23,030,000

You ask whether those figures indicate that the net income available for dividends and surplus of manufactured and mixed gas distribution companies was more comparable to the 15 utilities whose net income are reflected in the upper curve or some of the other curves on Chart 12 of Exhibit 185. I can't make an exact relationship here, because these curves are constructed on the basis of quarterly averages, not on annual averages. Oh, yes, on the basis that I have outlined, the chart indicates where they wind up at the end of the year.

The index number at which the utilities curve on Chart No. 12 stood at the end of the year 1929 was 142 or 143 based on 1926 as equal to 100.

(At this point, counsel for defendants produced a docu-

ment described as photostat of Chart No. 12 with a broken line curve superimposed on it, with the request that it be marked as an exhibit. At the direction of the Examiner, the document was marked Exhibit 195 for identification.)

I have checked the figures on the second page of Exhibit 195, which you have just handed me, and find they are the same figures in the middle column as the figures which I read into the record from Exhibit 194. Taking the location of my 15 utility companies shown on Chart No. 12 of Exhibit 185 which appears to be 142½ at the end of 1929 as the beginning point or index number for the figures reflected in the middle column of Exhibit 195, I have traced along the broken line moving immediately to the right from that point, the course of that line, to see whether or not it reflects correctly the course of the curve as fixed by the figures in the middle column on the second page of Exhibit 195 and find that they seem to follow the computed indexes shown on the page attached to the chart. The course of the curve is different from the course of the curve indicating the net income available for dividends and surplus of the 15 utilities shown on the upper curve of my original chart 12 and winds up about 40, as compared with approximately 107 for my utilities curve.

(EXHIBITS NO. 194 and NO. 195 were offered and received in evidence without objection.)

Redirect Examination Interposed by Mr. Slaff.

For the year 1931, the index for the 15 utilities shown on Chart No. 12 would be 123 based on 1926 as equal to 100.

The exact figure is 123.5 according to schedule 16,
1590 page 3. For the year 1937, it would be approxi-
mately 125, which is substantially on a par with 1931. So if we were using 1931 as 100 index, the 1937 figure would also be 100, approximately, as far as earnings available for dividends are concerned.

Referring to Exhibit 186, Schedule 2, which shows earnings available for dividends and surplus for the natural gas industry in the U. S. for the years 1931 to 1937, it appears that the net income available for dividends and surplus in 1931 was $50,816,000, in 1937 the figure was $74,623,000, so there was an increase during the period very close to 50 per cent. If I were using 1931 as an index of 100, the index for 1937 would be approximately 150.

Cross-Examination by Mr. Morgan Resumed.

Of course the figures supporting the net income are contained in the Exhibit to which I was referring. I see that in 1931 the total operating revenues of these companies was $368,000,000 and in 1937 nearly $447,000,000. Operating expenses and other revenue deductions increased from $284,000,000 in 1931 to $335,000,000 in 1937. Those would be the principal factors which account for the change in the net income available for dividends and surplus between the two years.

Redirect Examination Interposed by Mr. Slaff..

The source of the data there shown is the same, or comes from the companion statistical bulletin, issued by the American Gas Association dealing with the natural gas industry, as the one which Mr. Morgan put in evidence as Exhibit 194 on which he examined me previously.

Cross-Examination by Mr. Morgan Resumed.

In view of the note at the bottom of Schedule 2 of Exhibit 186, it is indicated that companies selling mixed manufactured and natural gas are not included in these data and distribution companies to which defendants sell gas are not included in the figures I have just read at the suggestion of Mr. Slaff.

You ask if the figures read into the record at the suggestion of Mr. Slaff are due to growth and not to increased earnings of the companies which were on an earnings basis in 1931. I cannot answer that question without studying these statistics a little further. It is my understanding that there has been a rapid growth in the volume of natural gas handled since 1931. It is in accordance with my impression that defendants were not operating in 1931, except in a preliminary way in the latter part of the year. I cannot say whether that was true as to Northern Natural and Panhandle Eastern. I do not know.

You ask if I can with any degree of safety compare the earnings of these pipeline companies in 1939, 1937, or 1938 with the earnings back at the time when they were not in operation. If they were not in operation in 1931, it would be necessary to pick up the first year in which they had

full operation for the year. It might be possible that we would have to make allowances in using the figures for the natural gas industry for those facts, which are matters of common knowledge, that many of the great pipelines were built and put into operation at approximately that period; but I am not familiar enough with it. Your premise is correct I believe.

1591 Chart No. 13 is also based on studies by Standard Trade and Securities, published by the Standard Statistics Company, Incorporated. On page 2, schedule 17, it is stated that invested capital includes funded debt, preferred and common stock, capital reserves, and surplus. By "capital reserves" are meant contingency reserves. Undistributed profits would be included in surplus, I imagine. Capital reserves does not mean reserves for depreciation and things of that sort. By capital reserves is meant reserves appropriated out of surplus for special purposes, which may be returned again to surplus when the purposes have been met, if they have not been used by that time. I believe I have the figures showing the 12-year average from 1927 to 1938, inclusive, of the yields of the 21 utilities, 42 railroads, and 400 industries shown on Chart No. 13. For the 400 leading industrial corporations, the average for the period is 6.60 percent, for the 21 leading utility corporations, it is 5.9 percent, and for the 42 leading railroad corporations, it is 3.87 percent. Included in these averages are the depression years of course.

You ask whether in my view in appraising the yields from investments as an element entering into a proper rate of return in 1939 that years like 1931, 1932, and 1933 should be included in the 12-year average in this chart. I think if you are going to compare the three groups of corporations for this period, there is nothing unfair about using the average. It all depends on what is being ascertained. In other words, if you use an average for one group, you are entitled, in comparing that with another group, to use the same average for the other group.

You ask whether I think that those three years 1931, 1932, and 1933, which marked the depth of the depression in this country, should be used in calculating averages from 1927 forward. The investor that is going out today to make an investment, in my opinion, would look at conditions as they exist in order to determine what he would expect as a return on his investment, based on comparisons, and his expectations of current return, in other words,

would not be based on a 12-year average, I don't think. It is possible that he would not be concerned with more than maybe one year, if at all. It depends after all upon the manner in which the investor studies the situation. You ask whether he would look only at 1938 or would take a glance at 1937 before he put his money in. It all depends on the investor. A true investor would probably either make a pretty detailed study of as much information as he could get hold of and digest, or turn his money over to or engage somebody to give him advice. He would demand today what he could get today. He could not demand any more. He could demand more, but he would not necessarily get it.

Yes, he could put his money in the bank and let it be loaned out at the interest rates I have portrayed in my chart here, or he could put it in government securities and refuse to put it into investments involving risks, unless he was compensated for his risks. You ask whether the indications are that he is not willing to put his money into investments on the earnings of today and the last few years. There are great quantities of idle resources to be sure; but the fact is, interest rates and yields on preferred stocks and so forth are not so high today. They are low enough to indicate that there is not a great demand for new capital at any rate. The fact that money rates in general are very low indicates that there is not a great demand for new capital.

1592 I don't know that you can say that people are running from risk. People are holding on to securities. Presumably there is a market for securities. It is not as though people are hoarding money. And it is true that people try to avoid risks in times of uncertainty. I don't believe that I said that people are unwilling to put their money to risks, because they are doing it. I have stated in my testimony in connection with this exhibit that there have been comparatively small transactions in common stocks. And I stated that as a reason why I did not include a common stock study in my exhibit 185. There was no demand for new capital.

You ask why there is no demand for new capital. Whether I explained it or not, I don't know; but the reason would be that business did not feel in a position to expand during the last few years. You ask whether it is unwilling to go into business for the compensation offered in relation to the risk involved. It may be that it would have been un-

wise to expand plants unless business could see a purpose for which they could be used. That is not a risk. That is common sense.

Questions Interposed by the Examiner.

You ask whether or not it is considered that there is a need for public utility construction which has not been made. There seems to be a division among the public utility men as far as I can gather from the press. I have read of plans involving the expenditure of $600,000,000 in 1940 for utility plant expansion. I haven't of my direct knowledge obtained facts which would lead me to a conclusion as to whether what I read is correct or not. I do not know of any public statistics that show the need of public utility construction, an accumulative need for public utility construction.

Cross-Examination by Mr. Morgan Resumed.

I have noted press comments; but whether I could lay my hands on them or not, I don't know. I mean just as part of the general information that you read as you go along from day to day. And furthermore, sometimes one figure you read will be different from another that you will see the next day; and it is pretty hard to form any conclusion from that sort of information.

I have read something about the release of the Federal Power Commission on the application of the Kansas Pipeline Company. I believe it is Order No. 39. I can't recall whether it was the release I saw or the order that I saw. I did read something about it. I don't remember having seen the statement in substance to the effect that a pipeline of that magnitude could not be financed by private capital and that witnesses on both sides had so testified. No, I do not recall that the release went on to say that the applicants would be given an opportunity to get a definite commitment from the R. F. C. and that the application would be held pending their efforts in that connection. My impression is that the application was left pending the receipt of a commitment for financing. What I was referring to was that the company, according to my understanding, failed to show that it had a commitment for financing. I don't know whether it has made that showing as yet.

1593. *Redirect Examination Interposed by Mr. Slaff.*

You ask if I know of any method by which the years 1930, 1931, and 1932 could be left out in computing a 12-year average. I do not. That 12-year average included those three years of the depth of the depression and also the so-called top of the boom period, 1927, 1928, and 1929.

Cross-Examination by Mr. Morgan Resumed.

It appears at page 8203 that you asked me this question: "The banks are full of money belonging to depositors who are not willing to invest it in the light of compensation promised for the risk involved. That is a matter of common knowledge in this country, isn't it, Mr. Knapp?" and I answered: "I believe that is a fair statement. That is a fair statement."

In Exhibit 185, Chart 14 is very similar to Chart 13, except that in Chart 14 the net profit is related to the total property accounts, less reserves, plus inventories. That is not the same kind of reserve that I was talking about a while ago when I was talking about capital reserve. The reserves referred to in Chart 14 are the depreciation or retirement reserves applicable to plant assets.

I don't think I would have any means of determining whether the level of depreciation rates or reserves had increased substantially. Of course, there is bound to be some normal increase, you understand, due to the fact of the passage of time. You asked whether or not in the past few years there has been a material change in the amount of annual reserves which are set up against depreciation and things of that character. I do not have a basis for answering that question. In my judgment, any changes in the proportionate amounts of the depreciation reserve to property accounts in the period covered by this chart would have no great effect. I did not mean to imply that the trends and directions of these curves would not vary materially if you were dealing with the property accounts without deducting the reserves.

The difference between the property accounts and the reserves—I am speaking on the mathematical difference—results from changes in both the property accounts and in the reserve accounts; and I think it is pretty difficult to say whether the net property account would be as fixed—

would follow as fixed a trend as the gross property account. You ask whether the annual allotments to reserves if left in the capital investment rather than deducted from it change materially the course of these curves insofar as their tendency or directions are concerned. Maybe not in the tendency, but I would have to get information from which I could make a definite answer. I cannot do it without making that study. I believe I could get the information from the Standard Statistics Trade and Securities, Volume III, Section J, and so forth, where they show a composite balance sheet from which these figures have been obtained. It is possible that they do show them less reserves. I had in mind the possibility that they might show the reserve separately.

I don't know that you can say a given company as a matter of common practice sets aside the same amount each year for accrued depreciation reserves. Sometimes a company will follow a consistent policy and sometimes it will not. We cannot answer that question without knowing the company and knowing its policy.

1594 You ask whether there was enough fluctuation in the percentages of the total capital investment set aside for a depreciation reserve from year to year to distort these figures. I don't see how they could distort it. We have got a base and we are relating net profit to a base, and the question of distortion does not arise.

Question Interposed by the Examiner.

Distortion is a common figure of speech and a relative one in statistics. In the sense that it was being used at the moment, I didn't think it should be used, because if you establish a base and relate something to the base, changing the base would not distort the curve. It would change the curve.

Cross-Examination by Mr. Morgan Resumed.

You ask if there is such fluctuation or variance in the practice of business in general, as it is reflected in this curve here, in the percentage of the total capital investment set aside to depreciation reserves or other kindred reserves as that the direction of these lines would be changed if I had used the gross property account instead of the property account less reserves. It is possible. I just

don't know how the use of the gross property would affect these curves. The course of these curves is attributable in part to the change in depreciation amounts provided; it is due in part to changes in gross property conditions and retirements. It is due to changes in net profit. It is due in part to a great many things.

Those changes which occur from year to year in the gross property account would occur as certainly if we were using the gross property account as the basis of comparison as if we were using the gross property account less reserves, if the same information was used, of course. I do not know whether or not the fact that reserves are deducted each year in arriving at the basis of comparison between property account and net profits would change the direction of those curves through the period represented by the chart from what that direction would be had the gross property account been used.

Questions Interposed by the Examiner.

You ask if that graph would not be useless if companies by rearranging their depreciation policy changed the amount of the net profit. If all the companies made that change the year in which they made the change would not be strictly comparable to the previous year. I do not know whether Standard Statistics, or whatever the source of these figures are, would have made some comment about that unreliability. I do not know of any wholesale changing of depreciation policy of that type, if it has occurred.

Redirect Examination Interposed by Mr. Slaff.

If there were a change in depreciation reserves in the amounts added annually to depreciation reserves, there would be a compensating change in net profits, but whether it would compensate for the difference in percentage, I don't know.

Cross-Examination by Mr. Morgan Resumed.

You ask whether the figures shown in Exhibit 194, page 14, table 6, the last line of figures, "Utility Plant," are comparable to those used in the total property account in arriving at the curve shown on Chart 14. I doubt it very

much. I believe the figures shown in table 6 are gross utility plant. It is not so stated, but I believe that to be the case. I believe the figures under "Gross corporate income" are comparable to the figures used in arriving at my results reflected in Chart 14 as near as I could get to figures of net profit shown in Chart 14. If you divide
1595 the gross corporate income from year to year by the utility plant you are not getting a curve which is on the same level or same comparable level as the curves reflected in Chart No. 14. The level would be changed. If I were to restore to the figure "property accounts less reserve" the amount of the reserve, the curve shown in Chart 14 would be on a different level; but I don't know whether they would follow the same pattern or not. Inasmuch as there would be no change in the net profit figures as a result of this computation, it would appear that if you increase the base the per cent of net profit to invested capital will be reduced.

(At this point, counsel for defendants produced a document described as a photostat of Chart No. 14 with a heavy broken line curve superimposed thereon and requested that it be marked as an exhibit. At the direction of the Examiner, the document was marked Exhibit No. 196 for identification.)

I have Exhibit 196 before me. I see the legend there identifying that heavy broken line which is on this exhibit and which is not on Chart No. 14, of which this exhibit otherwise is a photostat.

1596 I have made a check of the curve identified as manufactured and mixed gas companies on Exhibit 196 and the figures supporting that curve on the following page with the figures shown on page 14 of Exhibit 194. There is a typographical error in stating the gross corporate income for 1930 and 1931. For 1930 it should read 123,473, and the following year it should read 127,304. I find the return ratio in the fourth column correct on the basis of figures shown in Exhibit 194. I find the tracing correctly locates the curve marked "Manufactured and Mixed Gas Companies" in Exhibit 196. This tracing shows a lower level in the percentage of the relation of net profits to the total of property accounts for manufactured and mixed gas companies during the period covered than is indicated for the relation of net profit to total property accounts less reserve plus inventories for twenty-one leading utility cor-

porations. The relationship between the year 1929 and the year 1938 shows a difference in percentage of return ratio in the case of manufactured and mixed gas companies of between 6.76 per cent in 1929 and 3.43 per cent in 1938, or a decline of 3.33 per cent absolutely.

For the twenty-one utility corporations the relationship of net profit to total of property accounts less reserve plus inventories for the year 1929 was 7.6 and for the year 1938, 5.9, indicating a decline in percentage of 1.7 per cent absolutely. My results would indicate the decline for the twenty-one leading utility corporations, expressed as a percentage of 1929, of 22.4 per cent. The corresponding percentages of decline in the case of manufactured and mixed gas companies is 49.3 per cent.

(At this point counsel for defendants offered in evidence EXHIBIT 196.)

The manufactured and mixed gas figures shown in Exhibit 194 do not include inventories, I would assume, because the term and item "utility plant" shown in Table 6 is not qualified in any way. If it did include inventories, it would have to be qualified to be accurate, I think. If the item included inventories, as it is now shown, by removing inventories you would get a lower base and consequently a higher percentage. The fact that the figures which were used did not include inventories results in a higher percentage than if the inventories had been included in the base. To state it in my own words, if this figure does not include inventories, and you were to add inventories to it, the base would be increased and the per cent return would be lower than that shown in Chart 14 of Exhibit 196.

The figure for the twenty-one leading utility companies does include inventories. If I were to remove the inventories from the base in the calculations from which that curve resulted, it would raise the position of that curve on the chart because the base would be reduced, and if I were to remove reserves from the base for the manufactured and mixed gas companies, I would raise the position of that curve on the chart.

Questions Interposed by the Examiner.

The differential in absolute terms would be the same. In other words, when you take your reserves out and put your inventories in, all you are doing is shifting the vertical posi-

tion of the line; but I can't predict how much change will take place in the vertical position of the line. I know or believe it will change. Just how the reduction of the reserve would compensate for the addition of inventories, I don't know. There again, even though the annual retirement expense for the period of 1929 to 1938 is fairly consistent, but that in itself would not be an altogether complete basis for estimating changes in the reserve, because retirement may or may not have equaled, that is, actual retirements 1597 charged against the reserves during that period may or may not have equaled the provision.

(At this point the Examiner asked the witness W. C. Gilman, who had heretofore testified, questions through which he elicited the following information:

I assisted in the preparation of Exhibit 196. We tried to set it up with comparable data, but we just could not get from the American Gas Association, which is the only source we know of which compiles complete industry figures for the manufactured and mixed gas industry, the amount of the reserves for the industry at the end of each of those years. We made a check with respect to the question of whether the gross utility plant set forth in Exhibit 196 is with or without inventories, and were advised by the American Gas Association that the figures for "Utility Plant" in that exhibit do not include inventories. I made that check. The figure refers to gross utility plant account. I did not make any inquiry as to whether there was any separation of tangibles and intangibles.

Exhibit 196 was received in evidence over the objection of counsel for the Commission and for complainant, who were allowed an exception.)

Cross-Examination by Mr. Morgan Resumed.

I have no reason to change my position or to change the statement I made at page 7911 of the record while discussing Chart 15, in which I said: "I would like to refer again to previous testimony on bond yields as indicating that since 1921 public utilities have enjoyed, on the whole, about as favorable a market for their securities as other forms of enterprise; that since 1933 they have been able to obtain capital at lower costs than other enterprises, and that at least since 1935, in the case of newly issued electric utility bonds, they have been offered on the average at even more favorable terms than those obtained for public utility

bonds as a class. Thus, the attitude of investors aids in confirming the favorable position of public utilities from the standpoint of comparative risk." I think I would be willing to rest upon that statement. As to whether it would be more accurate if I had said they have been able to obtain refunding capital represented by the highest grade of bonds, rather than to say that they have been able to obtain capital at a lower cost, I don't think there was anything which is not disclosed in my statement. I, of course, stated, "In the case of newly issued electric utility bonds, they have been offered on the average at even more favorable terms than those obtained from public utility bonds as a class." I can't find any reason to change that statement. I have already explained, I believe, in prior testimony just what I was talking about. I believe I had explained it at the time I made that statement in the record. I mentioned that the financial transactions were largely of the highest order of bonds. Whether or not I mentioned that it was largely refunding, I can't say offhand. I might have stated that.

I would like my answer, of course, to indicate the facts; and if any facts have been omitted in that statement, I would be glad to have your additional comments added to that statement. Yes, I want the answer read in the light of my testimony that it all had to do with refunding transactions and with the highest order of bonds for the most part. I wish to add that statement with reference to refunding. The fact that in the case of newly issued electric utility bonds they have been offered on the average at even more favorable terms than those obtained for public utility bonds as a class is due to the fact that the investing public regards that type of bond as more safe and freer of risk than public utility bonds as a class.

1598 In this section of Exhibit 185 some of the schedules, for example that on page 2 of Schedule 16 and page 4 of the same schedule, show the moving average of earnings as terminating on March 31, 1939. It takes some little time for that information to be published, possibly a month or two months, and that of course would be the explanation for my stopping those moving averages as of that date.

Since that time there have been published figures which would enable me to bring that on down to date. You ask what the tendency of the moving average of earnings since March 31, 1939, has been so far as disclosed by the published figures. It happens that the figures I have for page 2 of Schedule 16 are indicated as being estimates for indus-

trial companies. I will give you those moving averages. For the year ended June 30, 1939, the average of the index, based on 1926 equals 100 per cent, is 60.5. For the year ended September 30, 1939, the average is 66.7. Those are higher than the moving earnings ratios have been since the year ending June 30, 1938.

Turning to page 4 of Schedule 16, for 15 utility companies the figures I have also appear to be estimates for the same two quarters; and on that basis the average for the year ended June 30, 1939, is 112.4 and for the year ended September 30, 116.5. There has been a progressive increase in the moving average in both these quarters.

Then turning to page 6 for the railroads, I appear to have the June 30 quarterly figure, which is not indicated as being estimated, so I would consider that as actual. Of course, prior figures were taken as actual. For the year ended June 30, 1939, the average for railroads was a red figure of 3.9. For the year ended September 30th, based on estimated earnings for the third quarter, it was a black figure of .8, so in a peculiar sort of way the moving average earnings of the railroads have been progressively upward since March 31. The deficit has been reduced. The red in June was not as large as it was in March, and they got into the black in September.

I would say that Chart 15 is another chart dealing largely with short-term interest rates. By rediscount rates of the Federal Reserve banks I mean rates which the Federal Reserve banks charged to member banks for making loans secured by eligible paper. You ask whether I know the facts as to the terms upon which the Federal Reserve banks will accept paper of a member bank. I note from Schedule 19 supporting this chart that the rates on all classes of paper from the beginning of 1922 to date would indicate to me that it was commercial paper that was involved in these rediscount operations. I don't have the information available as to what the terms are upon which the Federal Reserve banks will rediscount or what the requirements are to meet the rediscount rules of the Federal Reserve Bank. I do not believe the paper which they would rediscount would include capital loans. My impression in general is that it is confined to agricultural, industrial, and commercial paper. I can't give you the exact maximum maturity either; but it probably is not a very long maturity. It is probably less than a year. You ask if it isn't in fact 90 days. My memory may not be so good. I would prefer not

to answer specifically. My Schedule 19 shows that it used to be 60 to 90 days. That is what it used to be to the end of 1921. I have no positive figures as to the limit at the present time. You ask if I am clear that it does not include notes for the purpose of carrying on trade in stocks, bonds,
and other securities, except bonds of the United States.
1599 My answer would be that the type of security is the same you have just mentioned: agricultural, commercial, and short-term paper. I don't believe that brokers' loans would be handled under such an arrangement as this.

These rediscount rates would have very little if any influence on the cost of capital to a natural gas pipeline company. Of course, a company might require some short-term funds in a period to tide it over, and it might affect it to that moderate extent.

I stated in my direct testimony that one of the deductions you make from this chart is the circumstance that the rediscount rates have moved downward with fluctuations from the year 1920 through the year 1938. 1938 is considerably lower than the year 1920. So far as I am aware, there has been no change in the rates shown on this chart since August of 1937. You ask what effect the declining rediscount rates should have upon the volume of discounts made through these rediscount operations. It would permit the banks to carry greater loans from Federal Reserve banks than otherwise would be considered by them to be profitable. You ask whether or not, as a matter of fact, they have borrowed more money at this rate of 1 per cent than they did when they were paying rates of 1920 which varied from 4.75 to 7 per cent. I don't have the exact figures before me, but I think the volume would be comparatively small because of the lack of demand by borrowers for money from banks. I am familiar with Volume III of Standard Trade and Securities Statistical Section. That is one of the volumes from which I have taken my data. On Page A-3, Section A of the "Banking and Financial Section," at the top of which appear the words "Condition—12 F. R. Banks," it appears that the monthly average bills discounted for the year 1920, when the rediscount rate was 4.75 to 7 per cent, was $2,522,000,000. In the year 1929, when the rediscount rate ranged from 5 to 6 per cent, the total volume by monthly average was $946,000,000. In 1933, when the rediscount rate ranged from 2½ per cent for a short period up to 3½ per cent and then back down to 2 per cent, the average monthly total was $271,000,000. In 1938 the rediscount rate

had come down to 1 per cent, and the average monthly discounts for that year appear to be $9,000,000. The figure for September, 1939, would appear to be $6,000,000.

So, as the rediscount rate came from a rate ranging from 4.75 to 7 per cent in 1920 down to 1 per cent in September, 1939, the volume of business came down from $2,522,000,000 to $6,000,000. You ask what that indicates to me. It indicates something that I thought had existed, but not quite to that extent, that the volume of discounts have become quite low as compared with prior years, indicating that business was not borrowing money, and up until September, 1939, had not begun to resume the trend; at least I don't think it had from looking at those figures. That indicates that cheap money does not necessarily have the effect of causing an increase in discounted paper.

You ask whether or not I think it is safe to use a chart of this kind in the light of those circumstances, as any sort of a guide in an effort to arrive at a proper rate of return for natural gas pipeline companies such as the ones involved here. I think that this chart is informative, and taken together with the other charts in this exhibit is essential to a round knowledge of financial conditions. I do not think this chart would be misleading if used in conjunction with the other exhibits that are contained in Exhibit 185. I don't think that it is misleading if viewed in the light of the other supplementary exhibits.

1600 Chart 16 has to do with the rates charged by banks to customer borrowers rather than the rates charged to banks by Federal Reserve banks. That chart shows the almost uniform decline in the prevailing rates charged customers by banks in principal cities since the latter part of the year 1931, and indicates that the rates charged by New York City banks are lower than rates elsewhere in the country, averaging 2.24 per cent in February of 1939; that the rates charged by banks in eight other northern and eastern cities had declined by February, 1939, to 3.33 per cent; and that the prevailing rates charged by banks in twenty-seven southern and western cities had declined by February of 1939 to 4.09 per cent. I do not believe these three curves or a composite of these three curves would apply all over the country as far as interest rates are concerned. The curves themselves are indicative of that. It is clear that there can be a wide variance between New York City and the eight other northern and eastern cities, and there can be a wide variance between these eight northern and eastern cities

and twenty-seven southern and western cities. You ask if conceivably there couldn't be the same variation in the rates of the twenty-seven southern and western cities and the remainder of the southern and western cities. That is not so likely, I don't think.

That chart does not indicate to me that money is available to natural gas pipeline companies for over-all capitalization purposes at lower interest rates than it was in 1931. I don't see how it indicates or how it might indicate that it is more difficult to get capital money now than it was when the interest rates were substantially higher than they are now. It might indicate that there is a great surplus of money in the banks which is unwilling to go into capital enterprises under present conditions and that it is finding a limited temporary outlet at very low rates of interest.

You have read to me from the same volume of the study by the staff of the Federal Communications Commission, telephone rate and research department, captioned in the middle of the cover page, "The Problem of the Rate of Return in Public Utility Regulation With Special Reference to the Long Lines Department of the American Telephone and Telegraph Company, Dated June 15, 1938," from page 46 of that study, under the caption, "Improper and Inadequate Measures," the following language:

"In numerous rate proceedings data have been presented which were apparently not pertinent with reference either to the general level of interest cost to utilities in general or to the fair rate of return to the particular utility served. Such data may in many cases be definitely misleading."

You ask me if I agree to that statement. If the data is isolated, it may be misleading.

You have read to me a statement that "One inadequate or misleading measures is the legal rate of interest in the community or state served by the utility." I haven't said anything about legal rate of interest. I have talked about the conventional or bank rate of interest.

I don't believe I have any quarrel with the observation you read on the following page:

"The prevailing rate of interest in the locality for secured loans on business and residential property is another test which has been referred to by the Supreme Court and may be regarded as a rough measure of reasonableness.

However, it is evident that such prevailing rate of
1601 interest in the locality for secured loans on business and residential properties will be acceptable evidence

of the fair rate of return only in instances in which it is established that the employment of capital in the particular utility in question involves the same degree of risk."

You ask me whether I agree to the statement you read from the same source as follows:

"The price of short-term money is still another measure which has occasionally been used but which is obviously irrelevant as evidence of the fair rate of return to a utility."

I believe that when I was testifying and introducing charts on trends of United States Government bonds and 90-day time loans and 4 to 6 months commercial paper, that I specifically mentioned that these exhibits were not intended to be used as a measure of the proper rate of return, but that they were introduced to show that the declines discovered in bond yield averages for all types of companies were not an isolated phenomenon, but something that could be confirmed by reference to other indications of interest rates in general.

You ask me whether I agree to the statement of the authors of the language you have just read that it is obviously irrelevant as evidence of the fair rate of return. I think it would be if it were presented by itself as a bit of evidence, but it is not presented that way.

You ask me whether I agree to the following language from the same source:

"Indeed, the direction of movement of short-term money rates is likely to be a misleading indication of the recent or probable future trend of the cost of public utility capital."

I don't think that this exhibit bears that statement out. I disagree with that statement. You ask if I disagree with the following statement, which you have read from the same source:

"The supply of and demand for short-term money arises out of circumstances quite unrelated to the price of long-term money."

In general I think that is true. I believe I have already said that. You ask me whether I agree to the following language:

"Chart 2, page 48, shows the yield from 1927 to 1937, inclusive, on 60 to 90 day time loans, the yield on United States Treasury bonds, and Moody's index of the yield on forty public utility bonds. In 1928, for instance, the rate on 60-90 day loans increased rapidly, reaching a maximum of 8.34 per cent in September, 1929, at the same time that

Moody's bond index was falling or showing only a moderate tendency to rise. From the peak in 1929, however, until the middle of 1931 the rate on 60-90 day loans declined sharply to a low of 1.4 per cent at a time when Moody's average market yield on bonds stood at 5 per cent. The factors influencing the supply of and demand for short-term commercial paper and 60-90 day time loans are apparently entirely unrelated to the factors which influence the market price of long-term secured obligations."

1602 I still feel that my statement can stand; that the evidence here seems to indicate quite definitely that the trend of interest rates in general is following the same relative pattern. They may not be on the same level necessarily, but the pattern seems to be fairly consistent, at least for recent years. I do not agree with that statement entirely. I have not testified about current savings banks interest rates.

You ask if I agree to the language from the same source as follows:

"The yield on United States Treasury securities shown on Chart 2, page 48, is often regarded as being very close to the risk free interest rate, and as an indication of prevailing rate of time preferences. If that assumption is valid the yield on government bonds might be used as a base from which to measure the differential required in the fair rate of return to public utilities because of varying degrees of risk. It must be recognized, however, that the yield on treasury securities may temporarily reflect other factors than the market rate of time preference."

I think that statement is true. You ask whether I agree to the following language from the same source:

"In the interval from August, 1931, to January, 1932, the average yield on government bonds increased from 3.13 to 4.32 per cent; but it could hardly be contended that the basic interest rate increased more than one per cent in the five months, only to decline to 3.19 per cent one year later. Government bonds are frequently bought and sold by the Federal Reserve System to influence money rates, and as a result of this policy, as well as of surpluses in investment funds, it is possible that the yield on treasury securities may at times even go below the riskless interest rates—"

I think it may at times do that. The above quotation continues as follows:

"—the investors in such securities accepting a lower rate in order to achieve the extreme liquidity assured by in-

vestment in government bonds. In November, 1936, the average yield on such bonds declined to the extraordinarily low level of 2.29 per cent. Of course, irrespective of whether or not it is the most dependable available measure of risk free interest, the yield on government bonds is not a measure of the cost of capital to any particular utility enterprise."

I have testified that it is not a proper measure. I agree absolutely with the following statement from the same source:

"The price which must be paid for capital by a particular utility depends upon the investor's evaluation of the risk inherent in the operations of that utility."

You ask me whether or not I agree to the following language from the same source:

"Reference to the yield on high grade utility or corporate bonds in determining the fair rate of return for a particular utility is open to many of the same objections that are pertinent in the case of government bonds.

1603 "In the first place, unusual and abnormal influence such as those that have influenced the price of government bonds may carry over to and influence the yield on private secured obligations comparable in quality with government bonds. In any case, the average yield of a class of high grade bonds is not representative of the yield on bonds with different risk characteristics. The indices of security yields are acceptable evidence only to the extent that they reflect the circumstances and character of a homogeneous class of utility or industrial concerns."

Now it says here that "in the first place, unusual and abnormal influences such as those which have influenced the price of government bonds may carry over to and influence the yield on private secured obligations comparable in quality with government bonds." I agree with that statement, but if that influence has an effect upon private secured obligations, the fact still remains that the yield averages on such bonds are the only available measures to which reference can be made in making a study of financial conditions. The yields are what they are. It is true that you have got to exercise judgment as to the risk characteristics; and for that reason we have put in the bond yield averages of bonds showing different risk characteristics. Yes, I have done this to the extent of putting in utility bonds as well as industrial and railroad bonds, and I have described

the character of the utilities that are represented in the bonds whose yields are shown in my evidence.

You ask what is meant by a homogeneous class of utility or industrial concerns. That would be a class of like, as I interpret the word "homogeneous," industrial and utility concerns. You ask what I mean by a homogeneous class of utility concerns. I think here the reference is probably to quality of bonds. I don't think the word "homogeneous" means alike, and it naturally could not have the meaning of being alike in every detail, either from a financial or operating standpoint. I think it would mean that all Aaa are to be regarded together. I mean you break down the yields by quality of rating and you get from that a series of curves which show the effect produced by risk characteristics. I thought you were asking me about securities.

You ask what is meant by the term homogeneous class of concerns, whether they be utility or industrial concerns.

Questions Interposed by the Examiner.

You ask me if I agree with the last statement that I requested to be read some time ago. Yes, that is correct, Mr. Examiner. I agree with that statement if I correctly understand the meaning of the terminology "homogeneous class of utility or industrial concerns." The data I prepared is based on such an identification. To illustrate it, we speak of public utilities, railroads, and corporations, and we have broken bond yields down into those classes.

You ask me what the over-all meaning of the term homogeneous is as applied to a class of utility or industrial concerns. I think public utilities are a homogeneous class of utility concerns. I think industrials are homogeneous in the fact they are industrials. If you would like to ask me more questions, I will be glad to answer them if I can.

1604 *Cross-Examination by Mr. Morgan Resumed.*

You ask if it would be quite logical to use the language I asked you to read over again, that "The indices of security yields are acceptable evidence only to the extent that they reflect the circumstances and character of a homogeneous class of utility or industrial concerns," if all utilities met the specifications of being a homogeneous class of concerns. In the case of public utilities, it is usually attempted to break those down by type of individual utilities, that is,

telephone companies, gas companies and electric companies, and just what indices are being referred to I don't know, unless they are individually constructed ones. You ask if this doesn't mean that the security yields of other utility bonds or other corporate bonds in connection with the determination of a rate of return for a particular utility are only useful when they reflect the circumstances and character of homogeneous concerns, that is, they belong to the same kind of concern as that whose rate of return is under consideration. I think I can answer that in a way that might get to the point rather quickly by saying in every instance the particular circumstances surrounding the individual company must be taken into consideration in determining upon a fair rate of return. Now, then if we find that data is not available for a particular type of industry, the best we can do is to get data as nearly comparable to it as we can. This last sentence may mean that security yields or bond yields are acceptable evidence only when they belong to the same homogeneous class of concerns as the utility whose rate is under investigation. The more I think of it, perhaps, the more I think it does mean that, but at the same time I just questioned the use of the words "acceptable evidence" because if you don't have any other evidence, you have to accept what you find.

You ask whether, if I have the security yields of a telephone company, which I say is a utility, I don't think it is necessary to show the yields of gas company bonds because it is a utility also, even though it is a natural gas pipeline company which is under investigation. I believe Exhibit 186 has information concerning the yields of natural gas pipeline company bonds insofar as that information is available.

I don't know that I could agree with your suggestion that if there is a security that is closer to the natural gas security and more nearly of a homogeneous class with it than electric distribution bonds and telephone bonds, that would be more pertinent and more relevant in an inquiry such as this. You can take bonds of electric utilities, and if you assume all electric utilities are homogeneous, you can find a Baa bond that has a much different yield than a Aaa bond. All you have to do then is to examine into the rating of a security because both are electric utilities, but I know of no known indexes of gas companies as such or electric utilities as such. You ask me if it is my view that if they are both utilities, even though one be a telephone

company and the other a natural gas pipeline company with no distribution facilities, that they therefore belong to a homogeneous class of concerns. They are homogeneous in the sense that they are utilities. It might be that that is the only sense in which they are homogeneous. It might be that the only sense in which they are homogeneous is the use of that word "utilities" by some persons in describing them.

1605 *Questions Interposed by Mr. Slaff.*

You have read from the same source from which Mr. Morgan was reading a short while ago language commencing at page 50 of the study, as follows:

"Benefits Arising from Use of Objective Data.

"In formal rate proceedings, the evidence as to the fair rate of return has frequently, if not usually, been mere opinion testimony by 'expert' witnesses, unsupported by factual data or by other indications of the basis of the opinion. There has been a not unnatural tendency on the part of regulatory bodies to discount such evidence, even where it has been given by bankers or brokers whose business is the issue and sale of securities. In a discussion of opinion testimony in regard to so-called 'going value,' the Supreme Court has used the following language:"

" 'Other experts, testifying to an aggregate, without assigning a proportion to the contributory factors, give estimates so vague as to be little more than guesses, one of them, for illustration, holding to the opinion that ten would be a fair percentage, yet unable to give a reason why the amount should not be less or greater.

" 'From the testimony as a whole, one gains a definite impression that the opinions are derived for the most part from a professed experience and understanding of business conditions generally, and very little from any knowledge of the history and circumstances of the particular enterprise.

" 'We cannot find that the Commission and the Court went beyond the bounds of legitimate discretion in putting aside these estimates as too uncertain to be followed.' "

That is the end from the quotation on the Columbia Gas case.

"It seems fair to say that this language would apparently be equally descriptive of most opinion testimony offered in past rate cases with respect to the element of fair rate of return. Such theoretical analysis as has been of-

fered in rate proceedings is usually directed towards the establishing of one of a set of conflicting contentions. The same observation holds for the factual data which have at times been presented; namely, that it usually has been selected with a view to the particular propositions sought to be demonstrated."

1606 Schedule 21, Exhibit 185, deals with the gross sales of department stores in the U. S. and the Chicago Federal Reserve District. I used as a basis of comparison the average for 1923, 1924, and 1925 as 100. The schedule indicates that during part of the period, from 1923 down to and including 1938 the relative sales over the whole U. S. were higher and at other times they were lower than in the Chicago Federal Reserve District. You ask what is the general prevailing situation as between the whole U. S. and the Chicago Federal Reserve District. My examination discloses that the figure for the U. S. was slightly in excess of that for the Chicago Federal Reserve District in five of the years shown, namely, 1924, 1931, 1932, 1933, and 1934. In the other years, the U. S. total has been somewhat less than that for the Chicago Federal Reserve District, except in the year 1925 when they were the same.

That schedule indicates that conditions in the Chicago Federal Reserve District were about the same as those for the country as a whole during the period, although in recent years there seems to be some evidence in favor of the Chicago Federal Reserve district more constantly. Over the whole period, if there is any difference, it would appear to be in favor of the Chicago Federal Reserve District. That is the case during the past four years. No, you can't take these department store sales alone and get the whole economic picture. You have got to just select this as one of the several indexes which might be used for that purpose. As to whether it is necessary to weigh against these figures the difference in the tendency of sales of specialty stores as opposed to department stores and a lot of things of that character, I don't know how much refinement would have to be made of these figures. They are published by the Federal Reserve Board or banks as business indexes and purport to indicate the sales comparisons. I think this chart is quite pertinent to the subject of this inquiry.

Schedule 22 has to do with factory employment and pay roll indexes for the United States, the State of Illinois, and the Chicago Industrial area. The state of Illinois is included in that tabulation because it is the state in which

the Chicago industrial area is located. It is true the pipeline extends into several other states. You asked me to ascertain whether or not the same type of information was available in any of the other states through which the pipeline passes. I did so undertake and found that Iowa is the only state in that group of states mentioned, that is the States of Iowa, Nebraska, Kansas, Oklahoma, and Texas, from which employment and payroll figures are given; and I find that in the case of the State of Iowa, the only data published were employment data, not payroll data.

I have some notes which I made on that employment data to which I should like to refer. There is a notation contained in 1938 Supplement to the Survey of Current Business, which is published by the Department of Commerce, at page 174, which purports to describe the employment and payroll indexes from information furnished by the State of Illinois, which has furnished the information for both the state and the Chicago Industrial Area; and nowhere in that description do I find mention of whether the employment index gives any indication of whether it is a full-time or part time employment.

I shall read you a sentence: "Based upon the 1935 Federal Census of Manufacturers, the employment index—" that is the one which I have used for the State of Illinois and also for Chicago—"represented 76.1 per cent of all wage earners engaged in manufacturing industries of the state; and the payroll index represented 70.1 per cent of the wage payments." The language I have quoted is from page 174 of the 1938 Supplement. From that I gather that this represents the number of employees, and not the number of man days. I do not know whether it means full time employees or not.

1607 The second portion of the schedule is an index on factory payrolls in terms of dollars. This index of the number of factory employees and the aggregate factory payrolls indicates something about the conditions in the area in which the natural gas transmitted by the defendants is consumed; that being the case, I consider that the information is pertinent to the subject of rate of return in this instance, in the sense that it is information on economic conditions. I do not believe it would have been more pertinent if I had secured some figures for employment in construction work and payrolls in construction work in the same territory. For the purposes for which I have stated that information is to be used, I do not think

that the building industry or trades is more nearly related to a pipeline company and its operations than factory employment and payrolls.

With the thought that the prevailing scale of wages would be more pertinent and helpful than the aggregate payrolls of the factories located in the United States and in the State of Illinois and in the City of Chicago, I prepared schedule 23 as throwing some light on that subject insofar as I was able to obtain the required information. I do not know that there is information concerning the comparative wage scales of this country available in published form. There are indexes on wages. I forget the name of the Baltimore firm which publishes construction indexes. I think it is Handy, but I notice that even in that case, the information was not broken down by states. I am not acquainted with particular indexes of the Bureau of Labor Statistics concerning wages per hour, union wage rates, hours of labor, and information of that kind. I believe my answer applies also to the Bureau of Labor Statistics. My researches, however, encompass the publications of the Bureau of Labor Statistics.

To say I have not made any effort to get the actual wage scales except the effort reflected by schedule 23, does not do justice to the extent of the research that I undertook in order to get the information; but nevertheless, my research did not lead me to those particular figures to which you have reference. I could not find published figures anywhere except as above stated.

Going back to your question of a few minutes ago, I have here a bulletin entitled "Employment and Payrolls," issued by the United States Department of Labor, Bureau of Labor Statistics, in which there is a column called "Average Weekly Earnings," which appears to be in dollars, and it is broken down by industries; but the point I am making now that I recall the subject here, is that this is not broken down by states, and that is one of the questions you asked. That has to do with average weekly earnings. You ask whether I inquired as to whether there were statistics available as to the course of the wage scales in this country during the past several years. I think I made some explanation of that on direct testimony when I said that in an attempt to find something on wage scales I had discovered the figures published by the United States Bureau of Labor Statistics, but that they did not extend back of the year 1932. That statement is contained in note 1,

schedule 23. They did not compile those data prior to that date. The only available source I could find for the country as a whole, as explained in schedule 23, was the National Industrial Conference Board computations which, while they are not as exhaustive as the U. S. Department of Labor figures, are in fairly close proximity in recent years. Then, as I stated, I attempted to find data by states, and among the states I have mentioned, the only one I could find was for the State of Illinois.

This data compiled by the Bureau of Labor Statistics covered 89 industries. It was the same kind of data
1608 as that which I used in Schedule 23 in that it dealt with weekly earnings. You ask whether I have made specific inquiry of the department of labor as to information on wage schedules, wage scales for different types of industry, or whether I have made any attempt to get an over-all figure of any sort on wage scales. Would you consider, if I may inquire, a weekly earning as a wage scale? You are correct in stating that in the year 1930, the weekly earning was almost on a par over the whole United States with the 1929 to 1931 average. The average factory worker in that year got $25.84. You ask how many hours he worked for that $25.84. I do not know that I can give you the number of hours, but it does say that it is a week's time or a week's earnings.

Of course, if you are going to employ labor you would make inquiries as to how much work you would get for a specified sum of money. I don't happen to know the prevailing work-hours in factories over the country in 1930. I do not know the exact difference in the prevailing hours in factories today, but they are probably less. It does not refresh my memory for you to state that it would be about 55 hours in 1933 and that it is now about 42 hours. I do know that hours of labor per week have been by law shortened very substantially since 1930. I haven't examined the law in detail, but I believe you are correct in stating that the working hours are due to be shortened again under the existing law in 1940 from 42 hours a week to 40 hours a week.

I could not tell you precisely how many hours the average factory employee worked for the sum of $26.12 in July, 1939. From the standpoint of a man who has to pay the cost of labor, it is very important to know what that cost is going to be before he can tell anything about the cost of production or the cost of operation and before

you can appraise those indexes as indicative of costs to the man who pays the wages, you have got to know those things.

Redirect Examination Interposed by Mr. Slaff.

It is also necessary for the man who has to pay for the labor to know how much of the weekly wages for 1930 was paid to employees on a piece-work basis, as well as on other bases. That has been one common method of wage payment. I have no reason to believe that the practice has been done away with. If there has been a speed-up in the production process for piece workers and if payment per piece has not increased, then we would have a situation where there is not necessarily an increase in the cost per unit of production, despite a decline in hours worked. I think it would be a fair statement to say that regardless of that so-called speed-up of production by labor, there has been an improvement, an improved advance in the technology of industry and production methods in the last eight years.

Cross-Examination by Mr. Morgan Resumed.

You ask if you have got to know those factors of part-time and piece-work before you can appraise Schedule 23 as evidence in a serious proceeding of this character. These schedules were not put in for the purpose of showing the cost to industry of labor. They were put in for the purpose of showing the comparison of economic conditions; and are rather directed to what the employee receives than what the employer pays.

I would be willing to accept your statement that in this rate of return testimony the question has been raised as to the uncertainty of future operating costs and that some of the witnesses have testified that that is one of the hazards confronting the natural gas business. I have
1609 not heard many of the witnesses. I would like to say that for the purpose for which this schedule was intended, I don't believe that a study showing the tendency and the direction of wage scales over the same period of years covered by my schedule No. 23, which you suggest, would be of any material assistance. Then in line with your question concerning uncertainty in con-

nection with labor costs and operating costs, I would like to state that it is to be assumed that if such costs are reasonable that regulatory authorities will allow such costs to the utility concerned.

Schedule 24, "Gas, electric and telephone utility companies serving the city of Chicago, total operating revenues, years 1929 to 1938," I take as the base of 100 the average of the period 1929 to 1931. That schedule deals with gross operating revenues which indicate in the case of Peoples Gas Light & Coke Company and Commonwealth Edison Company there has been an increase in the gross operating revenues, while in the case of the Illinois Bell Telephone Company there has been a decrease in the total operating revenues. You ask why I did not use the net operating revenues instead of the gross operating revenues. I used the gross operating revenues because I felt that they were an indication of the volume of business that was being done by the utilities, and that is what I wanted to show.

You ask why I did not include the traction companies, if I just wanted to know the gross. Well, I believe in general that although traction companies used to be considered in the class of utilities years ago, that their condition is such nowadays that they are not generally included as such. They are regulated concerns, but they are different from the type of companies we have in mind here, as I have pointed out previously, in that these all furnish service to the home and are more likely to reflect the direct effect of economic conditions than in the case of traction companies from a gross revenue standpoint, because transportation is a vital necessity to so many people that economic conditions may or may not have quite as much to do with traction revenues as with these types of revenues.

You ask whether these figures indicate increased prosperity on the part of the Peoples Gas Light and Coke Company and Commonwealth Edison Company and a decline in that respect of the telephone company. I have made no statement about prosperity. I have merely attempted to show the volume of business that was being done by these companies; and since that volume is dependent upon the conditions in which the consumers find themselves, it seemed to me that that was the thing to which attention should have been directed. I thought I

had the figure showing how much of the $37,976,207, gross revenues of Peoples Gas Light & Coke Company for 1938, is escrowed and held in abeyance, not subject to their use. The figure you state, $2,140,300 sounds about right. This would reduce the revenues for that year to $35,835,907 if those escrowed funds are not counted. That would be less than for 1930.

I have a figure for 1931 for the net revenues of Peoples Gas Light & Coke Company. It is $9,676,084. I believe these figures are on a corporate basis. The net figure for 1938 is $6,010,615. If $2,140,300 be subtracted from that amount, the result is $3,870,315 which is less than one-half of what it was in 1931. You ask whether that is the situation with reference to the other two companies when we take their net revenues as opposed to the gross operating revenues, or total operating revenues. I do not know the exact situation, but I am inclined to think that it is not similar.

1610 *Questions Interposed by Mr. Booth.*

My recollection is that Peoples Gas did not begin the supply of natural gas until October, 1931. On the assumption that the principal portion of gas purchased represents natural gas purchased from defendants; that item it would appear represented in 1932 approximately a third or more of the total cost of operations. For 1938, the gas purchased figure was $12,451,281 and total operating expenses including taxes and depreciation, maintenance, et cetera, were $31,965,592. There is also an item covering cost of gas produced in 1938 which was $1,384,422. I do not know what the comparable figure was for 1930 or for 1931. All the figures I have for 1930 are three items,—operating expenses, state and local taxes, and depreciation. I could get no break-down of operating expenses from published figures. I could get those figures if I was assured access to them. They are not published. If I can find them in the annual reports filed by Peoples Co. with the Illinois Commerce Commission, I would be glad to obtain those figures for 1930. The figures I have used were published in Moody's manual of investments.

You ask whether the company has made an adjustment on account of over-accruals for taxes in recent years. I have found in attempting to acquire this information that

Moody's referred to several years income figures as having been later revised; and my understanding was that the revised figures were contained in the annual reports of the company to its stockholders but I was not able to obtain such annual reports. My understanding was that these revised figures had to do with taxes. I do not know whether the Illinois Commerce Commission in the rate proceedings involving that company found that it was attempting to charge to operating expenses substantial amounts for the item of taxes to which it was not properly entitled. I have not become familiar with that.

You ask whether the figure for Commonwealth Edison Company included revenues for Super Power Company for 1938. I investigated that point and found that for 1938, there was a footnote indicating that the year's figures included the Super Power Company; but the footnote appeared on no other year, so I assumed it related solely to the year 1938. I am not acquainted with the revenues of Super Power Company for 1937. You have handed me a report on Super Power Company of Illinois, filed with the Illinois Commerce Commission for the year 1937, which shows at page E-9, total revenues to be $6,654,669.22. The revenues from the Commonwealth Edison Company for the same year were approximately $2,000,000.

Cross-Examination by Mr. Morgan Resumed.

You call attention to my statement shown at page 7924 of the record in which I stated: "I think it would be helpful to summarize it, to summarize my testimony, and in doing that it may be said that the period since 1929 has been attended by severe economic depression, and that this period has been characterized by declines in interest rates." You ask that if in the light of all that has been developed concerning the charts and schedules contained in Exhibit No. 185, it would not have been more accurate had I said that it was characterized by declines in interest rates on government securities, short term bank loans, short term Federal Reserve rediscounts, and refunding operations in the matter of bonded indebtedness, particularly with reference to the highest rated bonds. I would not say that sort of summary would be entirely accurate for the reason that the statement

applies equally well to yields on outstanding bonds of domestic corporations, including the three types, 1611 public utilities, industrials, and railroads, as indicated in Chart No. 5. Mr. Slaff has referred to the circumstance that in the same answer, on Page 7924 I stated that the period has been characterized by declines in interest rates and return on money to about the lowest levels witnessed in this country since 1900. You ask if I meant that bond interest rates and the return on money had reached these low levels or whether I would separate the two parts of the answer. I would not attempt to make any separation there. You asked if interest rates for all classes of bonds had declined to the lowest levels since 1900. If you are talking about C bonds as rated by Moody, I have not made a study of that class of securities, but my statement was based on my exhibits that I set forth here and as indicated in the exhibits, the basis was a company having some degree of soundness and credit, and all those things which go to make up a company that deserves a rating from Baa to Aaa. I think it is quite evident what I am talking about.

You ask whether, when I applied the observation I have just made, that the decline in interest rates has descended to the lowest levels witnessed in this country since 1900, whether I include in that statement anything but the highest class of bonds. I can only say this in answer to that: If an examination of Chart No. 1 is made, it will be found that where there is a decline in Aaa it is usually accompanied by a decline in Aa, A, and Baa.

You ask whether the A's and the Baa's have not been lower in the past than they are at the present time. I think the language here is quite plain, that I have been talking about a period of time, a period since 1929, and I have been trying to summarize what I could as briefly as possible about what happened during that period.

Questions Interposed by the Examiner.

You ask whether in that period, the decline I am talking about there brought interest rates down to the lowest level since 1900. I qualified that to "about", if it makes any difference. You ask whether or not whatever the low point is after 1929, it is lower than it has been since 1900. That would be the sense of my statement.

Cross-Examination by Mr. Morgan Resumed.

I have already stated that I was talking about a period and not about particular years like 1932 or 1933 or even 1931. You asked when it reached the lowest level in the case of the very highest grades of bonds. That lowest level, I think, could fairly be said to have been reached in the middle of 1939 for bonds of Aaa, Aa, and A. For bonds of Baa, the lowest level reached in 1939 was about 4.80 as compared with the low level of 4.50 reached in 1936, which was the lowest point up to that time since the period of 1920 on. In 1938, Baa bonds reached a point 6.50 or thereabouts. I think a fair statement would be that in the middle of 1939, they all reached approximately the same point together, despite the fact that Baa bonds seemed to be slightly higher in 1939 than they were in 1936.

You ask if the yields on A bonds were not also higher in 1939 than in 1936. If you are talking about a difference of 3/100ths of one point, all right, I would be willing to grant the statement that the A bonds were higher in 1939 than in 1936. There is not any question that the equity money and the return on equity money is not reflected in these curves. You ask if that is true of every chart and every schedule that I have in my exhibit. I have already stated that Exhibit No. 186 contains some data on equity money. You ask whether I was talking about bond 1612 investments and not equity investments when I stated that the returns on money had reached the lowest levels witnessed in this country since 1900. I think I will say in all fairness that I was using the terms synonymously.

You are generally correct in stating that the costly part of the capital is the part that is represented by equity securities or common stock. That is true today and it has been true for many years. When I made the statement: "During the period since 1929 earnings of public utilities have shown a greater degree of stability than those of industrial and railroad corporations, which is an indication that public utilities in general are less subject to risks confronting other forms of business enterprise," I was talking about utilities in general. You ask what risks my Charts Nos. 12, 13, and 14 show that public utilities in general are less subject to than other business enterprises. Well, any

company that can show a fairly stable level of earnings over a period of years, I believe, would be classified as a company which was not subject to as much risk as companies which did have those wild fluctuations in earnings. No, I am not speaking of the risks of fluctuating returns at all. I am speaking of a condition which produces stable earnings and the risk inherent in those conditions. The income of the past does not always necessarily reflect the risks that confront a particular enterprise in the future; but a lot of us depend a great deal upon past experience and past records.

You ask if we must not look further than these curves in order to determine whether a particular regulated industry is freer from risks than other businesses. I would say if it were possible to do so, I would have compiled statistics about future conditions, but they do not exist and I have just given you everything I could which would make it possible to draw some conclusions based upon experience. It is conceivable that the present would disclose facts which present risks that are not reflected in past earnings; and I think that these charts indicate that as well.

Questions Interposed by the Trial Examiner.

I have a list of the 21 leading utility companies that appear on my Chart No. 13.

(At the direction of the Trial Examiner, the list was incorporated into the record as follows:

21 Leading Utility Corporations.

American Water Works & Electric Co., Inc.
North American Co., The
Pacific Lighting Corp.
Public Service Corp. of New Jersey.
Standard Gas & Electric Co.
United Gas Improvement Co., The
United Light & Power Co., The
Boston Edison Co.
Brooklyn Union Gas Co., The
Commonwealth Edison Co.
Consolidated Edison Co. of New York, Inc.
Consolidated Gas Electric Light & Power Co. of Baltimore.
Detroit Edison Co., The

Pacific Gas & Electric Co.
Peoples Gas & Electric Co.
1613 Peoples Gas Light & Coke Co., The
Southern California Edison Co., Ltd.
International Telephone & Telegraph Corp.
New England Telephone & Telegraph Co.
Pacific Telephone & Telegraph Co., The
Southern New England Telephone Co., The
Western Union Telegraph Co.

Redirect Examination by Mr. Slaff.

I remember that during the course of my cross-examination shown at page 8122, certain questions were put to me and answers made by me as just read by you. The effect of my answers was that since my testimony on direct I had made a study on yields on preferred stock and common stocks and that it might be desirable to present them as testimony; that such studies had not been prepared at the time I had testified before, that I had made studies which give recent indications of cost of common stock capital, so far as I could derive a cost for that kind of capital from market prices of outstanding stocks.

(At this point, counsel for the commission handed the reporter a document headed: "Yield at Market Prices of Electric Operating Utility Preferred Stock and Number of Times Dividend and Prior Requirements are Earned, Market Prices for Week Ended November 17, 1939, Income for Latest Twelve Months," with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 197.)

Exhibit No. 197 is one of the studies that I referred to at page 8122. This study is a compilation of yields at market prices of electric operating utility preferred stock and number of times dividend and prior requirements are earned, based on market prices for week ended November 17, 1939, and times requirement earned, based on income for the latest twelve months.

This list contains 21 electric operating utility preferred stocks and includes all of such preferred stocks listed in Schedule 19 of "The Problem of the Rate of Return in Public Utility Regulation," published by the Federal Communications Commission June 15, 1938, for which preferred dividends and prior requirements were earned in excess of one

and one-half times in 1938. This exhibit shows that the yields at current market prices for these preferred stocks can be classified in this manner:

For one issue, 4 per cent;
For three issues, between 4.01 and 4.07 per cent;
For four issues, between 4.25 per cent and 4.5 per cent;
For five issues, between 4.5 and 5 per cent;
For three issues, between 5 and 5.5 per cent;
For four issues, between 5.5 and 6 per cent;
For one issue, 6.09 per cent.

(EXHIBIT NO. 197 was offered and received in evidence without objection.

At this point, counsel for the commission handed the reporter a document entitled: "Earnings—Price Ratios of Electric Operating Utility Common Stocks and Per Cent of Gross Income Available for Common Stocks, Market Prices for Week Ended November 17, 1939, Annual Income Per Latest Quarterly Reports," with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit No. 198.)

I have before me Exhibit No. 198 which was prepared
1614 under my direction. This exhibit represents a compilation of earnings—price ratios of electric operating utility common stocks and per cent of gross income available for common stock—I would like to have that "s" in the word "common stocks" on the second line of the caption deleted—based on market prices for week ended November 17, 1939, and annual income from latest quarterly reports.

This list contains the common stocks of 14 electric operating utilities and the earnings-price ratios may be classified or grouped in this manner:

One issue at 4.5 per cent;
One at 4.98 per cent;
Three between 5.83 and 6 per cent;
One at 6.32 per cent;
Two between 6.7 and 6.8 per cent;
One at 7.06;
Three between 7.65 and 7.8;
One at 8.53;
One at 9.11.

And I might add that this list of common stocks includes all electric operating utility common stocks listed in Schedule 26, the schedule showing 1937 earnings, March, 1938,

prices, in the publication entitled "The Problem of the Rate of Return in Public Utility Regulation," published by the Federal Communications Commission, June 15, 1938, and I might add that only stocks were included for which at least 5 per cent of the outstanding issue was held by the public.

(EXHIBIT NO. 198 was offered and received in evidence without objection.)

You have handed me a document entitled: "Schedule of Securities, Massachusetts Mutual Life Insurance Company," dated December 31, 1938, and asked me to refer specifically to pages 9, 10, 11, 13, and 14 of that document. That is the same type of document that Judge Morgan had with respect to the Equitable. It purports to contain a list of bonds and securities held by the Massachusetts Mutual Company. The caption for the securities or bonds listed at the pages I have mentioned "Power, Light, Gas, Water, Traction, Telephone, and Telegraph Bonds, includes within the caption bonds of the following companies:

Arkansas-Louisiana Gas Company,
Cities Service Gas Company,
El Paso Natural Gas Company,
Lone Star Gas Company,
Oklahoma Natural Gas Company,
Panhandle Eastern Pipeline,
Southern California Gas Company,
Southern Counties Gas Company of California, and
Southern Natural Gas Company.

Included among those companies are so-called pipeline companies. You ask whether those various companies are described in detail in Mr. Smith's direct testimony, and whether they are included in the gas companies which he described in detail. I find one exception, Mr. Slaff, and that is the Lone Star Gas Corporation, which is listed on page 11, but by referring to Schedule No. 5 of Exhibit 186, page 3, I find the company represented or known as Lone Star Gas Company. It probably is a different company. With that exception I find them all represented.

1615 *Cross-Examination Interposed by Mr. Morgan.*

I would hesitate to say that all those companies listed in the pamphlet you have there own some distribution.

Question Interposed by Mr. Booth.

I would not be qualified to state whether the Panhandle Eastern Pipeline Company owns any distribution facilities. I haven't made sufficient study and I don't have the facts in mind.

Redirect Examination Resumed by Mr. Slaff.

I cannot say, but I don't believe Mississippi River Fuel Corporation owns any distribution.

You hand me a booklet entitled "96th Annual Report of the Mutual Life Insurance Company of New York," and direct my attention particularly to pages 30, 31, 32, and 34, and ask whether or not there is a list in that booklet of public utility bonds held by that investor. Yes, this list purports to be a list of bonds owned by the Mutual Life Insurance Company. There is a separate section devoted exclusively to public utility bonds, beginning at page 29. Included in that section are the bonds of the Mississippi River Fuel Corporation, El Paso Natural Gas Company, Lone Star Gas Corporation, Northern Natural Gas, Ohio Fuel Gas, Panhandle Eastern, and United Fuel Gas Company. It would be my assumption that that investor regards those bonds as public utility bonds.

You hand me a booklet entitled "The Travelers Year Book 1939, 75th Anniversary". It appears to be a similar booklet to the one to which I have just referred and is for Travelers Insurance Company, Travelers Indemnity Company, and Travelers Fire Insurance Company. It contains a list of bonds held by several of the companies that you mention and also including the Travelers Insurance Company. It has a separate section devoted to public utility bonds beginning on page 37 and on page 38. This list is for Travelers Insurance Company. Within that separate category of public utility bonds, this investor includes bonds of the Lone Star Gas Corp., Northern Natural Gas Company, Oklahoma Natural Gas Company, Panhandle Eastern Pipeline Company, and Southern Natural Gas Company.

You have handed me another document which appears to be the 1939 Year Book of the Aetna Life Insurance Company. This booklet also contains a list of bonds held by that company. On page 11 appears a caption "The President's Annual Report." It contains a statement beginning

at page 9 of bonds and stocks of the Aetna Life Insurance Company. There is a separate section on pages 35 and 36 devoted to public utility bonds. The caption is "Public Utility Bonds". Included in that section is listed the bonds of Panhandle Eastern Pipeline Company and Southern Natural Gas Company.

You have handed me a booklet entitled "The 72nd Annual Business Statement, 1938, Metropolitan Life Insurance Company, Containing a List of the Bonds and Stocks Owned by the Company December 31, 1938." At page 4 appears to be the balance sheet of Metropolitan Life Insurance Company as at December 31, 1938 and public utility bonds are included on the asset side of the balance sheet at $589,927,007.34. I would say it is a sizeable investor in public utility bonds. It has a separate listing of public utility bonds on pages 47 to 53 inclusive under the caption "public utilities". Under that caption, they list the bonds of the Mississippi River Fuel Corporation, Cities Service
1616 Gas Company, El Paso Natural Gas Company, Northern Natural Gas Company, Ohio Fuel and Gas Company, Panhandle Eastern Pipeline Company, United Fuel Gas Company, and Southern Natural Gas Company. My interpretation of this would be that investor regards those as bonds of public utility corporations.

Question Interposed by the Examiner.

I have not taken time to examine whether or not the investments in the bonds of the companies I have named specifically are in each case sizeable.

Redirect Examination Resumed by Mr. Slaff.

In the case of the Metropolitan, the following figures appear:

For Cities Service Gas Company, First Mortgage Pipeline, 3¾ per cent, the admitted asset value is the amount shown, $10,000,000; El Paso Natural Gas Company, First Mortgage Bonds, $1,988,000; Mississippi River Fuel Corporation, First Mortgage Pipeline bonds, $3,374,000; Northern Natural Gas Company, First Mortgage and First Lien Series A, $4,692,000, and for the same company, the same bonds, Series B, $614,000; Ohio Fuel Gas Company, identified as Notes, $4,289,691.26; and Panhandle Eastern Pipe-

line Company First Mortgage and First Lien Series A, $4,298,439.20; Southern Natural Gas Company First Mortgage Pipeline due in 1953, $3,000,000, due in 1952, $602,976.53; United Fuel Gas Company, identified as Notes, $4,289,691.26.

In the case of both of those note issues a note is appended stating they are guaranteed by Columbia Gas and Electric Corporation.

I was requested while I was on the stand in my direct testimony to bring various figures up to date. In the course of my cross-examination I have done so with respect to every instance where I was requested to do so. There is one set of averages that was going to be worked out which I have not put in. One item I might mention is the names of the twenty-one leading utilities which has already been furnished to the reporter.

With respect to Chart 13, I was requested to compute certain averages which I have done.

You ask if I could get an average for the period 1930 to 1938 for the different types of companies listed. The information on which these averages are based is contained in schedule 17, pages 1 and 2.

You requested information concerning the average percentage of net profit to total invested capital for the period of 1930 through 1938. Those figures are as follows:

For 400 leading industrial corporations, 5.34 per cent; for 21 leading utility corporations, 5.60 per cent; and for 42 leading railroad corporations, 3.15 per cent.

Cross-Examination by Mr. Morgan.

There were five or six pipeline companies in those portfolio lists to which I referred a little while ago. You ask whether or not a great many of them are holding companies that own distribution facilities and whether many of them directly own distribution facilities. As I have already stated, I would rather not answer those questions. I
1617 have compared the name appearing in the list of bonds in these pamphlets with the lists of companies shown in Schedule 5, pages 1 to 6 inclusive, of Exhibit 186, and on that basis made my statement. I understand that list in Exhibit No. 186 does not exclude distribution companies, but is confined to companies which own pipeline facilities or production, although they may own also distribution facilities.

You ask whether, without knowing any more about those gas companies whose bonds are listed in those portfolio lists, as to their distribution facility holdings, and their other characteristics than I have stated here, I would be willing to say that they and the telephone company whose bonds are listed here, and the telegraph company whose bonds are listed, constitute a homogeneous class of concerns. My answer is that insofar as they are all classed as public utilities, I would say that they were. You ask whether public utilities and homogeneous class of concerns to me mean one and the same thing. When you group things under classifications the line of distinction has to be drawn in order to make your grouping; and certain bases of homogeneity have to be assumed or determined upon in order to make the selection. Now, in the sense that all of the companies can be included under one group or another, they are homogeneous to the companies which are in the group in which they are included.

I am speaking generally and do not necessarily agree with your suggestion that if they are put under the same caption and called public utilities, they belong to a homogeneous class in the sense that that term is used in the Federal Communications Commission study that we considered.

(At this point, counsel for the defendants called the Examiner's attention to the fact that a small tract of land containing 23/100ths acre had been omitted from Exhibit 143 and that they had secured another affidavit including that piece of land. The affidavit was handed to the reporter with the request that it be marked for identification. The affidavit was described as one by Sibley Jines, dated November 17, 1939, covering a tract of 23/100ths of an acre in Beaver County, Oklahoma. The same affiant had made a previous affidavit. At the direction of the Examiner, the document was marked Exhibit 199. EXHIBIT 199 was offered in evidence, and was received over the objection of counsel for complainant and counsel for the commission, who were allowed an exception.)

1618 CHARLES W. SMITH, a witness for the Federal Power Commission called for cross-examination, testified:

(November 30, 1939.)

Cross-Examination by Mr. Morgan.

My title with the Federal Power Commission is Chief of the Bureau of Accounts, Finance and Rates. I was assigned to that position on July 1, 1936, but I had been retained by the Commission as a consulting accountant prior to that time. The division of rates was transferred to my jurisdiction about February, 1938.

The duties of my position are many and varied. First of all, I have charge of all accounting matters which come before the Commission, the duty of preparing systems of accounting, handling report forms, making accounting investigations in all sorts of cases.

Secondly, as to the Division of Finance, I make a study of all security issues which come to the Commission for approval, all mergers and consolidations, and all financial matters which come to the Commission generally, including rate of return matters such as we now have here.

As to the Division of Rates, the Division of Rates receives all the rate contracts, the rate schedules filed by public utilities as defined by the Public Utility Act and natural gas companies as defined by the Natural Gas Act; making studies of those schedules, making a full investigation in rate cases; making reports on investigations and the staff gives testimony under my jurisdiction.

In addition, we have a statistical organization in the Bureau of Rates which compiles statistics, particularly rate statistics.

Among the things that will be filed with the Commission and handled by my department are the reports of the natural gas companies concerning the volume of sales and revenues. The Commission only recently adopted a report form for natural gas companies and they will be required to file a comprehensive financial report for the first time for the year 1939. However, in response to Orders 51 and 53 of the Commission, certain selected financial data were filed by many of the natural gas companies. I believe that included in that data is volume

of gas sold under each contract and the amount received for that gas sold under each contract. Those come to my department.

Immediately before I came with the Federal Power Commission, I was with the Maryland Regulatory Body for seven years, from 1929 to 1936. My duties with that Commission were pretty much the same as they are today except the duties were confined to utilities operating in the State of Maryland and under the jurisdicti of the Public Service Commission of Maryland. Of course, the utility companies included telephone, water, motor vehicle carrier, street railways, and so forth, whereas the jurisdiction for the Federal Power Commission is, as you know, limited to electric and natural gas companies.

I stated that while with the Maryland Commission I testified on many occasions in rate cases.

1619 I testified as to accounting and financial investigations which were made under my supervision, very largely made by myself, and as to the rate of return, including also a good deal of testimony concerning economic conditions and economic facts.

I might mention that the testimony given on behalf of the Commission in regard to the use of index numbers in the famous C. & P. Telephone case, which went to the Supreme Court, were introduced by me. These were telephone cases, electric cases, gas distribution cases, traction cases, motor transportation cases, and all kinds of cases, including one company which distributed natural gas which it purchased from the affiliated company, necessitating a study going back to the source of supply. In none of those instances did I recommend a reduction in the rate of return. I never gave an opinion as to the rate of return. I gave testimony as to the facts. It is my understanding it is the Commission's job to weigh the facts and make the determination.

In formal proceedings I have never recommended or expressed my judgment under oath as to what the proper rate of return might be. Of course, in the State Commissions you have a good deal of informal cases, a great many informal proceedings, and there I was frequently called upon to express an opinion as to rate of return. That was in connection with negotiated rates. I have never testified under oath as to my judgment what a rate of return in a particular case ought to be. I feel that is not my province. No, sir, the facts I have pre-

pared in each case have not generally been in the direction of reducing rates. The facts I have prepared have always been facts.

I can't say if any rate reduction was ever made solely on the basis of testimony given by me. I can state I was in a number of cases where rate reductions were made. I testified in the C. & P. Telephone case, the Potomac Edison case and the Conowingo Power case. In those cases and in others rate reductions were made. Just how much my testimony had to do with the ultimate result I am unable to say. It is not true that in the testimony I have given in connection with those studies I have testified and approached the subject from the viewpoint of those opposed to the contentions of the regulated company.

I approach all these cases with the desire of getting the facts; and any fact which I think will enable the Commission to make a fair and adequate decision I would give, I don't care whether in favor of the company or in favor of the public. I never withheld any information from the Commission which I thought the Commission should use in making a determination. I will state this, however, while I was with the Maryland Commission particularly I had a small staff. I was investigating large public utilities with many times the force I had. I didn't go out of my way hunting for things in favor of the utility. Anything I came across in the ordinary course of investigation I brought it out. I considered my duty primarily to be to the public and to be sure the public's side was presented properly.

The side I represented was an impartial side. I didn't spend a lot of time hunting up things which may be in the company's favor, although I had many times found items in the company's favor and so related them.

1620 I would like to refer you to the Potomac Edison case where I disallowed very large sums from the cost of the electric plant, and I restored because of mistakes the company had made almost as much as I disallowed. That is the only way I can work as a professional accountant.

You ask if my work has been primarily from the viewpoint of an accountant. It is much more than that. I have been for twenty years preparing for this work involving the administrative process, accounting, economics and law. Specializing in that field for twenty years, I

have studied subjects throughout that time which I hoped would train me for a competent administration in the field of administrative law. I have taken many courses in economics, and am a member of the American Economic Association, and I have constantly studied economics.

I feel the same degree of responsibility to both sides in preparing my case for the Commission. When it comes to a rate of return I have given impartial statements. In many cases I have had to do a great deal of research work. I will refer you to the question of labor rates which you spoke of yesterday. I probably have made the only thorough labor wage rate investigation in the City of Baltimore by going to the payrolls of contractors and taking off the amounts paid. That was given to the Commission impartially. It was presented to the Commission as a fact. My duty is to gather facts and give them to my employers. My primary responsibility has been to protect the public interests. I have never been in a case dealing with a large utility where the utility was not adequately represented. I have never testified for a company.

I have never initiated an issue of securities. I have had many consultations with public utility officers regarding security issues, plans and methods of financing. There have been occasions when I inquired how companies have been financed, wanting to know that, and I think I have been instrumental in helping companies to refinance by drawing their attention to certain market conditions and by raising the question. As far as security issues are concerned I have had a great deal of experience in making a study of security issues, the proper rates at which they should be issued and questions involving when securities should be issued.

I was discussing coupon rate, mortgages, mortgage provisions, exculpatory clauses, the whole field.

The regulatory body can not control the investor's attitude whatsoever. However, all the Commission would have to do is frown upon a security issue and that security issue would be absolutely killed. You know that it is a very serious matter, the approving of a security issue. Very frequently in my work we have had to discuss matters with the officers of companies to get them to make changes which we recommended in order not to have any issue at a proceeding, because it might do some damage to the issue itself.

I remember not long ago a well-known attorney, I can give you the name if you wish it, was in my office. I urged him to make some corrections about certain clauses in the indenture. He didn't want to do it, but he went to the bankers in New York and came back and said, "The bankers insisted on the very thing you have mentioned. Thanks to you we were prepared for it."

1621 In these days while it is true if the regulatory body frowns upon an issue of securities it will kill it, the fact they smile on it, to use the opposite figure, doesn't mean the company is going to pay the stated rate of interest when it offers the security for sale. You did find it quite frequently in the so-called golden-glow days in the '20's.

I would like to explain my last answer. It is very clear you don't understand what I had in mind. Back in the '20's it was the favored practice of utilities to advertise widely the fact a security issue was approved by a public service commission. When I was with the Maryland Commission we tried our best to stop that practice because we felt it was misleading. We approved some securities which were not Aaa, and we were afraid the advertising of the approval of the Public Service Commission, the "widespread advertising", would be misleading.

I have said that my dealings with the issues have been from the standpoint of a member of a staff of a regulatory body with a sense of responsibility primarily to the public, but I have also studied it from the standpoint of the man who has to have the money or who wants the money. My approach has been from both angles. After all, a person in my position has a responsibility to see that the company is soundly financed. That is the reason I think commissions are charged with the duty of regulating security issues, in order to do everything it can to help the company get the money and get it as cheaply as it can. I don't see any difference between the two viewpoints whatsoever.

I have never been employed by any private interest when my services and my talents might be utilized in developing and marketing an issue of securities. I have been consulted many times in that respect. I have done quite a bit of work on the side while with the Maryland Commission as a consulting accountant, consultant to financial houses, one financial house at least, and on tax

matters, and I have written opinions on reorganization for one stock brokerage firm. I have been consulted about those matters. I have never been in the employ of any company for that special purpose only, for the sale of securities. I don't believe I said anything about that phase of my activities in my direct testimony.

You asked whether I was employed as a consultant on a compensation basis and asked something about a security that was pending before the Commission on whose staff I was serving. I have not been so employed upon a matter pending before a Commission; but before a Court, I received as much as $500 for one opinion on a reorganization matter which did not involve a public utility. The opinion concerned a plan of reorganization from the viewpoint of taxation. The case was in the court and it was a proceeding involving the reorganization, and I was retained to study certain phases in connection with it. It had to do with the entire method of reorganizing the company, because the method of reorganizing the company involved a big tax question, and the plan of reorganization of the company, the method of security issues, and so forth, was changed as the result of my opinion. The tax liability question frequently is one of the most major questions in proceedings of that sort.

Exhibit 186 was prepared under my immediate direction. I selected the character of the material. I suggested where and how it might be assembled, but I gave those under me considerable leeway as to where they could
1622 get the information, because the information is pretty hard to get at this time.

Schedule 1 of that exhibit is styled, "Natural Gas Industry in the United States. National Revenues from Sales to Consumers, Gas Sales to Consumers, and Number of Gas Customers." That has to do with the transactions of natural gas distribution companies. The figures representing the revenues of natural gas pipeline companies from gate rate sales are not reflected here. It is my understanding that the figures for natural gas sold to companies who mix it with artificial gas before it is sold are not shown. I would not like to state that this exhibit does not represent very much of the gas that is marketed by defendants.

In general, I am familiar with the record in this case. Of course, there is a great deal in this record that I am not familiar with. I have had a staff of auditors looking into the record of this company for a good many months now.

I believe you are right in that 90 percent of all of the gas transported by defendants is sold to the Chicago District Pipeline Company, and that in turn is handled by the Peoples Gas Light and Coke Company, Public Service Company of Northern Illinois, and the Western United Gas and Electric Company.

You ask whether it is true that all of these companies sell mixed gas. The reason I hesitated in giving an answer to your question,—if you take gas sales to consumers in M. C. F.'s for the year 1938 you will find it is 1,200,607,000 M. C. F.'s. Now, if you will turn to Schedule 3 you will find that the total natural gas consumption, according to certain governmental statistics which we were able to obtain, was 1,410,636,000 M. C. F.'s in 1937. I think by considering both schedules you can get a pretty good picture of the situation. One by itself, as I think you have indicated, would be inadequate. As far as the two defendant companies are concerned, the consumer data are not shown on Schedule No. 1. The source of the figure I gave for 1937 and 1938 is given in the schedule, "Monthly Summary of Gas Company Statistics, Annual Supplement," issued by the American Gas Association in March, 1939. I think probably that was a preliminary set of figures. Since my exhibit was prepared, I think the final figures became available. That is the reason that the final figures are not in that exhibit.

I don't believe I have checked the final figures as reflected in the October statistical bulletin, No. 37, which in this record is Exhibit 179, to see whether or not they check with my figures shown in Schedule 1. Checking the figures of my Schedule No. 1, under the caption "Revenues from sales to consumers", in the first column of figures for 1937 and 1938 with the final figures shown in Exhibit 179, the total revenues for 1937 were $443,219,000, whereas the total revenues for that year shown by Exhibit 179 amount to $443,408,000. For 1938, the figure shown in Schedule No. 1 was $419,474,000, whereas that shown in Exhibit 179 was $416,580,000. The difference in the 1938 figures is approximately three million dollars. I think you should use Exhibit No. 179 for the years 1937 and 1938 instead of the figures in Schedule 1 wherever there is a conflict.

1623 In Schedule 1 the gas sales to consumers in M. C. F.'s is shown as 1,316,140,000, whereas the pertinent figure taken from Exhibit 179 for the year 1937 is 1,314,907,000 M. C. F. For the year 1938, Schedule 1 shows

1,200,607,000 M. C. F., whereas Exhibit 179 shows 1,213,352,000 M. C. F.

In order to conform this schedule to the revised or final figures it would be necessary to change those figures and the figures in the succeeding four columns.

For the year 1937 the average number of customers shown by Schedule 1 was 6,859,300, compared to 7,066,000 shown in Exhibit 179. Those figures in Exhibit 179 show the number of gas customers at the end of the year. My figures show the average number of customers during the year. For the year 1938, Schedule 1 shows 7,033,700 customers, whereas Exhibit 179 shows 7,231,000 customers at the end of the year 1938.

To the extent that there are any changes, in order to be in conformity with the final figures it would be necessary also to recalculate the figures represented in the last five columns of figures in each of the three sections of that page for the years 1937 and 1938. I am not sure of the changes in the number of customers because my figures are average number of customers during the year figures while those in Exhibit No. 179 shows gas customers at the end of the year. The average shown here was taken from the bulletin mentioned at the bottom of the page.

There was an increase in the revenue of distributors selling natural gas between 1929 and 1938. I believe the percent of increase would be 11.3. Going to the column immediately below that, the percent increase of the total gas sales in terms of volume between the years 1929 and 1938 would be 22 percent. The average number of customers shown in the next column increased between the same years by 23 percent. It appears to be true that the first column of figures under the caption, "Revenue," when compared with the figures for the other two sections, the one dealing with gas sales and the other with the average number of customers, indicates that in order to get 11 percent increase in revenues these distributing companies have had to handle an increased volume of gas to the extent of 22 percent; and they have had to handle it for an increased number of customers by 23 percent.

You asked if they had to build a line and make an installation in the home or the place of consumption of every one of those increased number of customers. I don't know how much increase in fixed capital they would have to be making. You can build some lines into an apartment house and to a good many customers, and that is pretty much

the custom these days, so I would like to have the exact figures. I do not like to deal in generalities when the exact figures can be had. It is bound to involve some increased cost. I don't think it would require the increased capital cost you imply, because I do have the specific figure on Schedule 2, it being $2,317,000,000, in round figures, in 1934, and $2,400,000,000 in 1937. Now take the number of customers during those years and you will find a substantial increase.

It is true we are comparing the number of customers in 1938 with those in 1929, but you asked me a question which involved a question of judgment as to whether or not there would be an increase in capital, and my answer is that I don't know to what extent there would be a corresponding increase in capital. Offhand, I think there would be some, but how much it would be, I don't know, because that would be a line of inquiry different from what I have shown here.

I think that it would involve an additional amount of
1624 capital cost and an additional operating cost. I don't think there is any doubt about it. Increased volume would be most costly, other things being equal. They would have to buy 22 percent more gas, that is true. The figures here dealt with gross revenue.

On the right hand part of the page, without stopping to adjust those final figures there in 1938 to the final figures in Exhibit 179, it appears that the trend of the average annual revenue per M. C. F. has been downward, so far as the total is concerned. It has been upward for domestic and downward for all other class of sales.

In the electric business, the consumption per customer has increased. The average annual revenue per kilowatt has decreased, of course. The average annual gas sales have decreased slightly from 1929. There has been considerable fluctuation in the interim. In 1938, it was 170.7 as against 173.7 in 1929. The year 1938 was generally an off year for gas utilities; not only for gas utilities, but for businesses generally. It was considerably under 1937.

The next column to the right, captioned, "Average Annual Gas Sales Per Customer" for domestic gas, shows a decrease from 62.5 in 1929 to 53.6 in 1938. Domestic is the highest priced gas. That is universally true.

The average revenue per customer has decreased from $65.97 in 1929 to $59.64 in 1938. Of course, the figure for 1937 was higher and I am not sure that 1938 is a proper figure to use for the purposes of this comparison. I be-

lieve the 1939 figure will be more in line with the 1937. The domestic was $41.65 for 1929 and $37.52 in 1938, about 11 percent higher in 1929 than in 1938. The average domestic consumer in the United States was paying about $3 a month for his gas in 1938. I don't know whether the average revenue per customer in the electric industry, electric utility and distribution business, has fallen off or increased as between those two years. The figures are available. They are published, I think, by the Edison Electric Institute.

You asked whether or not they have increased or decreased on the basis of revenue per customer. We have two factors. We have clearly an increase in the kilowatt hour sales, and we have a decrease in rates. I don't know what the net effect is. I would guess that the effect is an increased total bill; but it is an easy matter to verify. If anyone has a bulletin of the Edison Electric Institute they can get the exact figures and clear up the matter at once. I didn't think you were going along that line of inquiry or I certainly would have had it with me.

You asked whether I think that the trends reflected by my Schedule 1, whereby the volume of gas sold, which in turn must also be bought, and the number of customers served, has increased by more than twice the ratio of the increase in the gross revenues, is a healthy trend over that period of 1929 to 1938. Part of it is healthy and part of it is not. The increased number of customers is a pretty good sign. The street railways would like to have an increased number in customers, for instance. The falling off in the consumption per customer, of course, is an unhealthy sign. Yes, generally speaking, the street railway gets just as much from one customer as it does from another. The revenue per customer does not vary a great deal to offset the increase in the number of customers.

1625 Although an increased number of customers coming at the time of the peak is a pretty expensive thing for the street railway industry. That is because of the additional equipment it must have. An increase in the number of customers, if it were in the off-hours, would be more than welcomed by the street railways. At other times, an increase in the peak load would be expensive.

You asked what else I can see that looks healthy, except the increase in the number of customers that have to be connected up and served in order to get this 11 percent increase in revenue. The exhibit shows that the business is

not a moribund business. Revenues are not going off. The revenues are actually increasing. That is a pretty healthy sign. That is a good sign. It has not increased proportionately. I don't think you ought to expect it to increase proportionately, for an industry as old as the gas distribution industry, an industry which, I believe, started in 1816. In other words, you would not expect the same rapid growth after 100 years' experience or so as you would for the electric industry, which is a new industry. I dare say 100 years from now, or 50 years from now, that the growth in consumption of kilowatt hours will likewise fall off on a percentage basis.

You asked if the natural gas industry is rather new to a lot of people right now. The natural gas industry and the pipeline industry are quite new, and I think it is a little different from what we have here. It is true that these natural gas pipelines have taken gas for the first time to hundreds and hundreds of cities, and I think it is on the increase. I think it will be patterned somewhat after the experience of electric utilities.

You asked what has been the trend in the manufactured gas industry as to domestic consumption and revenue per customer from the distribution of artificial gas or manufactured gas. I don't know. I know that it has been put in evidence in this case, but I can't recall the figures offhand. It is my understanding, as a matter of common knowledge, that they have fallen off. When I mentioned the fact that the gas business was about 100 years old, I was talking about the gas distribution business. The present users of natural gas have not been using natural gas for 100 years. You cannot apply that 100-year observation to the natural gas business in many hundreds of towns in the United States. That is exactly the point I wanted to make. The point is that the natural gas pipeline industry is a relatively new industry. I am afraid if you apply standards derived from the manufactured gas industry, which is 100 years old, that you will be misled.

It is true that Schedule 1, which has to do with this new industry, this natural gas industry, also shows that since 1929, a perceptible falling off per customer has been experienced in commercial consumption and in commercial revenue; but they also show an increase of total revenue, which is a very important figure. I don't know by how many the distribution companies have increased in order to reflect that increase in revenue from 376 to 419 million

dollars; but I imagine the distribution companies have increased substantially as far as natural gas distribution is concerned, and I think many hundreds of towns have been added to the picture.

1626 Turning to the page of Schedule 2 in my Exhibit 186, the reason I did not include the year 1938 in that schedule was that those figures have been published since the exhibit was prepared. They ought to be considered. The figure showing net income available for dividends and surplus for 1938, according to Exhibit 179, is $62,399,000. The fixed capital for that year was $2,441,840,000. There is a falling off then of more than $12,000,000 in net revenue available for dividends, with an increase in the fixed capital figure of $27,000,000. By fixed capital I mean investment in plant. It has nothing to do with the sum total of the securities issued or with the surplus. It relates to investment in distribution properties and lines, pipes, compressor stations and so forth, per books.

You asked whether or not that would be the original cost or the adjusted value originally charged to plant account and less reserves set up. As an accountant, I cannot answer that question, because when you mix original cost and adjusted value it covers anything in the universe. It covers a lot of book figures.

Redirect Examination Interposed by Mr. Slaff.

It would save the Federal Power Commission and me a lot of headache if they would do away with original cost and adjusted value.

Cross-Examination by Mr. Morgan Resumed.

The figure includes the original cost as reflected per books, with no reduction for depreciation. It is the gross figures of the plant account. I am referring to the figures from 1934 to 1937.

Redirect Examination Interposed by Mr. Slaff.

Since the figures for 1938 should be taken into consideration, the figures for 1939 should also be considered. Of course, you should consider the most recent information available.

Cross-Examination by Mr. Morgan Resumed.

We can't go back and compare fixed capital in 1938 with fixed capital in 1929, as we did the data dealt with in Schedule 1. We do not have the information. At least, I do not have it, and I could not find it. It is my impression that there is no available information.

From 1931 to 1937 the operating expenses have increased substantially; namely, from $284,000,000 in round figures to $335,000,000 in round figures. During that same period taxes have increased from $29,800,000 in round figures to $41,100,000 in round figures. That represents an increase of about one-third. Profits went up during that time, available for dividends and surplus, about 50 per cent. If you go back though, from 1938 to 1931, the increase for net available for dividends was a much smaller percentage, roughly about 25 per cent; while the taxes went up 33 per cent. The comparisons should be made with the most recently available figures.

You asked why the revenues for manufactured gas for the years 1929, 1937, and 1938 are in so much straighter lines as plotted here on Chart 1 than the revenues of the total gas industry or from natural gas. I believe it must be due to the larger amount of natural gas used for
1627 heating purposes. Artificial gas is confined more nearly to the kitchen. People will eat at all times of the year. There is a marked seasonal fluctuation, both in the revenues and in the volume consumed, of the natural gas. That is shown also in Chart 2.

In Chart No. 3 the broken line, which has been labelled "Industrial Activity", is the volumetric quantity. The quantities are stated in terms of products and not of dollars. I think that is true also of manufactured and natural gas sales. I feel sure that the person compiling this would not make such a grievous error as not to have them on the same basis. You can't compare dollars with volume. I took that chart from some American Gas Association publication. I noted there that the term "natural gas sales" was qualified to include domestic and commercial sales.

You asked whether I would expect the curve to run in the same direction if it were confined to gas sold for industrial uses. I have anticipated that question in reviewing these charts for the purpose of getting ready for

cross-examination; and I am prepared to give you pretty generally the way the curve would look if it included industrial sales. It would be different if confined to industrial sales. If another curve were superimposed here which dealt with gas used for industrial fuel only, the course of that curve would be different. There is a wide variation in the volume of gas used for industrial purposes. The industrial index fluctuates more widely than the index of domestic and commercial sales; and reacts more directly to business conditions and to industrial production. It is termed a more sensitive index, to use a technical term.

1926 is the base year for this index. All three indices are chained together to 1926. You can tie these indices together for any one year. You can take 1910, 1905, or 1915, and they would be exactly in the same line when you tie them together. In other words, when you use a base year, you bring all that together. That is, you use that as a base year. Then they diverge from that point, either forward or backward. In 1926 I put them altogether but they did not stay together long. They began to diverge.

You asked what purpose I think this chart serves in this inquiry. It sheds a little light on the natural gas industry, particularly from an economic viewpoint. It shows that the natural gas industry is growing faster than the manufactured gas industry and has not been attended with the severe decline connected with industrial activity. I think it is a healthy sign, in other words. I don't know what accounts for the course of the curve. The curve shows there has been a growth in the volume. As to the underlying causes, I don't know whether I would be able to give them to you properly. If we were dealing with only the natural gas companies that were in business in 1926, and we were tracing the volume of the business of the particular companies who were in business in 1926, the curve would not take exactly the same course; but that would not be a proper curve. I don't think it would even if you were dealing with the companies which were in existence at that time. As far as the economic situation is concerned, it might be far from the truth. It is like taking one store and saying that is an index of department stores generally. It might not be so. You have got to include the entire industry to get a proper perspective.

You asked if going to the question of stability, we ought to be dealing with the particular companies that 1628 were in business in 1926, to see how stable they have remained. If you are dealing with particular companies, yes, but if you are dealing with the industry, no. The stability of the industry means in an economic sense whether the industry is expanding or whether it is moribund. As to the title, I would like to say that the title was not selected by me. It is copied from the publication of the Gas Association and it is a correct portrayal—whoever devised these graphs did a good job of showing, as far as the industry is concerned, a picture of its growth and development.

The chart itself shows that the conditions have not remained the same in the industrial field and in the manufactured gas field and in the natural gas field, over the period the chart covers. It shows that the volume of gas handled has changed. That is an important feature. I cannot go along with you in the idea of taking one business or company or two or three companies and tracing them. You will find as far as the electric business is concerned, that the electric business I look upon as a very healthy business generally. However, as far as some individual companies are concerned, the reverse is true.

You asked how much new capital has been put into industrial enterprises, not including the natural gas pipeline companies, from the year 1926 down to the present time. A great deal of capital was put into industrial enterprises between 1926 and 1929. Since that time there has been very little capital flowing to any business. The curve of industrial production since 1929, when the downward trend starts, is dealing with the production of capital as it existed in 1929. In the natural gas business, more capital has been put in. However, to continue the comparison, if you had put more capital into industrial activities, the picture would have been even worse than is shown here. The industry in general could not absorb any more capital. The gas business did absorb more capital, particularly the pipeline companies. If the other industries had put more capital into production facilities, they could have produced more, but they would not have, and the picture would have been far worse than it is. In other words, if the industries in general had expanded

their plant, the picture would have been very bad, because expansion was one of the difficulties I think we faced in 1929, and further expansion would have been awful. You know what happened after 1929. Large amounts of plant were shut off, reorganizations took place in order to get fixed charges down, depreciation and things of that nature. Just the reverse of what you are indicating.

Questions Interposed by the Examiner.

That would not have affected the dotted curve, but if you relate this to capital, then the picture would have been much worse than shown here. There has been an expansion of industrial goods during the period.

Cross-Examination by Mr. Morgan Resumed.

I am not talking about return now. I am talking about industrial production related to capacity. The industrial curve reflects nothing as to its relation to the actual conditions. It does not indicate anything as to any particular branch of industry.

1629 You asked how many pipelines have been built in this coutnry since 1926. I would say most of the large lines. I don't know whether the New York State Natural was built since 1926. I don't have the dates that the lines were built. I know that a substantial volume of pipeline construction was taking place during that period, as shown particularly in the Federal Trade Commission reports, and that is the source of my information. I am not in position to name dates for any company, except perhaps the companies involved in this proceeding. I know there is such a company as the New York State Natural. I know we are investigating it at the present time. I have a staff of men on the job. That line, I will say, was built since 1926, generally speaking.

I don't know when the Mountain Fuel Supply Company's line was built. It is at Salt Lake City and has long transmission lines. It produces in Wyoming, Colorado, and Utah and has transmission lines going from Colorado, Wyoming, to Salt Lake City and Ogden, approximately 442 miles of 16-inch and 18-inch pipe transmission lines. I don't think that line was built prior to

1926, and, generally speaking, most of these lines were built since 1926. You find a chart here which was intended, or, rather, Schedule 3, shows the importance of the interstate movement of natural gas from 1926 to 1937. Generally speaking, I think that answers your question. I want to agree with you, but I can't give specific years or periods, because I don't know.

I don't know when the Montana-Dakota Utilities line was built.

I don't know when the Pacific Gas and Electric Company's transmission line was built.

I don't know when the Stan-Pac line in California was built. I don't know whether it was built since 1926 or not.

My answer is the same as to the Southern Fuel Supply Company's line.

I know the Montana Power Company acquired its line after 1926, but I don't know when it was built.

My answer is the same as to the Houston Gulf Gas Company's line.

The Canadian River Gas Company's line was built since 1926.

I don't know about the Lone Star Gas Company's line out of the Texas Panhandle, or the Northern Texas Utilities' line out of that field.

I don't know about the Arkansas Louisiana, but it built a large extension since 1926.

I don't know when the West Texas line from the Amarillo field down to Lubbock and other south plains cities of Texas, part of the Canadian River group, was built.

I wish I knew; I would be glad to answer if I did, but I can say that I know that there has been a large increase in pipelines since 1926. I am not able at this time to identify the lines.

1630 I don't know when the Colorado Gas and Fuel Company, from the Hugoton field, was built.

We have the rates filed of several hundred companies. I could not possibly carry them in my mind. That is one of the unfortunate circumstances of holding the hearings in Chicago. I could answer the question in a few minutes back in Washington, if I had my papers.

I don't know when the Kansas Pipeline and Gas Company built its two lines.

I know a good deal about the Interstate Pipeline Com-

pany, but I don't know the year of the construction of the line.

I don't know when the Memphis Natural was built, or the Consolidated.

I think the Michigan Transmission was built since 1926.

I don't know when the Cities Service line out of the Texas Panhandle was built. I believe the Northern Natural and the Southern Natural were built since 1926.

I am afraid to answer as to the Panhandle Eastern. I think it has been since 1926, but I cannot tie my reasoning down to any particular point. My recollection is that all of the pipelines out of the Panhandle have been built since 1926.

I don't know with reference to the El Paso Natural or the Mississippi Fuel.

Part of the Columbia Seaboard line over on the east coast was built since 1926, I know.

I think Colorado Interstate was built since 1926.

The pipelines just named represent a large proportion of the total pipeline outlets for natural gas in the whole country. And, of course, you should include the two companies involved in this proceeding. As to why they should be included, since only the gas sold by natural gas distributing companies west of Chicago would be included on the chart, they, nevertheless, should be included because we have just said that all the pipelines just named provide a large proportion of the total pipeline outlets for natural gas.

If you remove from the volume of gas represented by that curve, from the year 1926 down to date, that which represents gas distributed in towns to which those pipelines named above took natural gas for the first time since 1926, you would have an entirely different curve. Under such circumstances, I assume the curve would follow pretty much the same as the manufactured gas curve. It would be an assumption, because when you eliminate all this increase in business and take the same companies I think it would follow along the general line of manufactured gas more than anything else we have on this chart.

I am not familiar with the bulletin of the United States Department of Interior called "Natural Gas", by F. S. Lott and G. R. Hopkins, chapter preprint from Minerals Year Book 1939, review of 1938, with final statistics for 1937, issued by the Bureau of Mines. You have handed

me a document which meets the description you have just recited. You have asked me to read the first two paragraphs on the first page of that bulletin.

1631 "The natural gas industry experienced a moderate shrinkage in demand in 1938 after four years of rapid recovery from the depression low of 1933. Total marketed production had increased 55 percent from 1,555,000,000,000 cubic feet in 1933 to 2,408,000,000,000 in 1937. However, because of generally adverse business conditions in 1938, marketed production is estimated to have declined to 2,263,000,000,000 cubic feet or 6 percent below 1937.

"Capital expenditures in the production and transportation branches of the industry were much lower than in 1937, as existing facilities were generally adequate for the requirements of current markets. Since the period 1928-1932, when many long distance gas lines were constructed, managements have emphasized expanding the volume to utilize excess capacity and improving load factors, but at profitable rates. There appear to have been two restraining influences in the last two or three years upon the extension of pipelines to new markets. One is the activity in many localities of groups sponsoring competing fuels. The other is the stagnation of capital markets for durable goods, which has almost eliminated public financing as a means of raising money for new gas enterprises."

You asked whether I know what is meant by the observation in the statement I have just read that one of the two restraining influences in the last two or three years upon the extension of pipelines to new markets is the activity in many localities of groups sponsoring competing fuels. The only thing I know is that since the Natural Gas Act was passed there are certain groups that are advocating the use of coal in contradistinction to natural gas for industrial purposes.

You asked whether I am familiar with the fact that there are groups who are in favor of legislation requiring the use of coal for industrial purposes as opposed to natural gas. I am not familiar with anything specific along those lines. I know the coal associations generally are trying to do their utmost to expand the use of coal. We have a Bituminous Coal Commission which is deeply concerned with the economics of the coal industry, and we have had some legislation on the subject already, as a matter of fact; but as to how far they are going and what their specific recommendations are, I don't know.

I don't know about the bill which you say is now pending in Congress concerning which hearings are now being conducted, based on a report by a conservation committee headed by Frederick A. Delano, which was filed with the President and by the President transmitted to Congress, and in pursuance of which a bill has been introduced to set up a commission to exercise drastic powers over the usel of fuels in this country. I don't know that the groups who are interested in this question are advocating an enforced raise in the price of industrial gas to take it out of competition with coal.

The petitions that I have read from the coal interests have been to the effect that the Federal Power Commission should not grant a certificate of convenience, should not permit a natural gas company to invade certain markets or certain areas where coal is now being used for industrial purposes. I don't know anything specific on the organized activity in the interest of raising the prices of natural gas used for industrial purposes, since the enactment of the Natural Gas Act.

1632 I believe the railroads are another group who are sympathetic with the same activities. They naturally would be, of course. The railroads transport a great deal of coal and they don't want to lose that business.

I am familiar, generally speaking, with Moody's Manuals. That is a work from which my staff and I have drawn freely in preparing the statistical data used in this case. You have just read a paragraph from A-58, in the 2nd blue portion of that manual, captioned, "A Nation-Wide Survey of Public Utility Progress." The particular volume is Moody's Public Utility Manual for 1939, under the caption, "Domestic Consumption". The language you have read is as follows:

"The trend of domestic and commercial consumption combined has been steadily upward for the past decade, increasing 51 percent from 1919 to 1932, declining 4.5 percent in 1933, increasing 2.9 percent in 1934, 9.1 percent in 1935, 9 percent in 1936, and 7.5 percent in 1937. The gain in sales and revenues continued through most of the depression as a result of the extension of pipelines to densely populated areas which were previously served only by manufactured gas. The most notable examples were the Detroit line which connected the City of Detroit with the Texas Panhandle and the Hugoton Kansas fields and the

Chicago line which pipes gas from the Panhandle in Texas to the City of Chicago. In the latter case the gas is then mixed with the manufactured product and distributed throughout the entire city. While we have no figures indicating the experience of domestic sales, exclusive of business gained because of the extension of pipelines, figures from individual companies and individual states indicate declines in both sales and revenues were experienced during the depression. Per capita consumption by domestic and commercial users has dropped quite steadily as the number supplied with mixed gas has increased."

You asked whether I think those are reliable figures and observations. I can't answer the question as to those percentages. I would have to make the same study to verify them. I am willing to make the statement that Moody's Manuals are reliable in that connection, but as to that, the many percentages you have quoted, I just can't answer.

You asked if I would be willing to accept Moody's statement there that there would have been an actual falling off in those states and communities where natural gas was being served but for the added volume resulting from these pipeline extensions that are referred to as having occurred. I don't quite understand what you mean by falling off. Falling off in the manufactured gas, or the gas in general. It is awfully hard to follow what you have read at this distance, not having it before me.

(Counsel hands witness the volume.)

It is under the heading, "The Natural Gas Industry," shown on page A-55. A sub-heading, "Domestic Consumption" at A-58. The sentence I believe you want me to consider is: "While we have no figures indicating the experience of domestic sales, exclusive of business gained because of the extension of pipelines, figures from individual companies and individual states indicate declines in both sales and revenues were experienced during the depression." Well, I know of no reason why I
1633 shouldn't accept it, but I have not made such an investigation as would enable me to verify the statement. I repeat my statement that generally Moody's is a reliable service. That is consistent with what I said in my statement that the curve showing the volume of domestic sales of natural gas would probably follow the same course as the artificial gas sales. The statement in Moody's is not directly in contradiction of the course of that curve.

Moody's statement says there has been a falling off for consumption of certain customer's in certain states, but it does not go to the total volume of natural gas distributed, which is contained on Chart 3. I think we are dealing with two different things.

In the statement, "While we have no figures indicating the experience of domestic sales, exclusive of business gained because of extension of pipelines, figures from individual companies and individual states indicate declines in both sales and revenues were experienced during the depression", nothing is said about customer consumption. It says both sales and revenues decreased during the depression. That is exactly what happened to manufactured gas. That is not talking about customer sales.

I do not wish to modify my answer in any respect or my comments on this curve in any respect in the light of what Moody says about this.

No, I did not take the pains to go back and check the data which I took from Moody's and used in Exhibit 186 and in Exhibit 185, which was also prepared under my direction. That statement would not be entitled to just as much authenticity as would the figures we used. This is a different kind of study. You know, Moody qualifies his statement there considerably. He refers to the absence of data. He refers to a survey made of some companies in some states. It is greatly qualified. It is far different from the financial figures which are given, such as the ratings of stocks and bonds, which is an absolute fact; the market price of which is an absolute fact. I mean, there is much more reliability to those matters contained in Moody's Manuals than there is to Moody's conclusions as to a survey of a business. I mean, they are different things. No, I am not saying I would want to go back and check this before I made the statement. I said, generally speaking, I would accept Moody's. I repeat this, but I said the statements are not entitled to the weight the financial material is generally entitled to and generally receives.

If I were to plat on that same chart there or a similar chart a curve showing the volumetric production of the air-conditioning industry, sales of air-conditioning equipment, and so on, I think such a curve would be indicative of the stability of this business as compared with industry in general. I know that the sale of that sort of equipment has had a distinct rise, but you said compared to industry in general. It would give the best comparison I could pos-

sibly have as to industry. After all, you have to have some standard, some yardstick. We have a yardstick of industry in general and we have air-conditioning applied alongside of industry in general. As far as comparison between the two, I don't think I know of anything you could get which would be better over the period of time covered by the chart, whatever it might be.

1634 I think the fact that this line ran in an upward direction far above the curve of the industry in general would indicate that as compared with business in general the air-conditioning business was a very healthy business. Of course, now, for stability you have to have a long period. You can compare the two and tell whether the air-conditioning business is more stable than industry in general very easily if you have a sufficient number of years. I think the chart here in 1905 and 1940 would be ample by any stretch of the imagination. I do not think 1926 to 1938 would be sufficient for the air-conditioning industry. I don't think it is sufficient for the natural gas industry; but I think it is probably the best period you could get for that industry. It is the only period we have so far as the main bulk of it is concerned. But you can in that short period of years determine the stability of that industry by comparing the volume that is handled through a lot of new pipelines which were constructed with industry which was in the throes of the worst depression the country ever had for a reasonable period of the future; not for a long period, of course.

Yes, I know that industry during the period covered by this curve, since 1929, has been in the worst depression it has ever known. I know that the natural gas business has been largely built during that period, and that makes me appreciate the natural gas business very much. I think it is a splendid thing for the natural gas industry. I am referring to its growth in a period of depression, when everything else was going down, the natural gas business went up. Its stability over a long period of years can not be thus demonstrated. The reasonable period in the future can be judged from wealth in the present and nothing else. The present is the best indication of the future that you can get.

Schedule No. 3 was given for the purpose of showing the importance of the natural gas in interstate commerce as a commodity of interstate commerce, and also indicates

that a great deal of the natural gas industry, from the passage of the Natural Gas Act, will be subject to regulation. Originally, I believe the purpose of the exhibit was to use it in connection with the proposed legislation setting up the Natural Gas Act, although I have used it here for a different purpose. I had nothing to do with the passage of the Natural Gas Act, of course. The original purpose of the exhibit might have been to contribute toward the enactment of the Natural Gas Act but it has more pertinence than that. I think it gives a very good picture of the importance of natural gas as a commodity of interstate commerce, and I think it is important for us to realize the effect of regulation on the natural gas business. You asked whether it shows anything about the effect of regulation. It will show that a great deal of the natural gas business will be brought under regulation. I think it is important to know that fact. It shows natural gas consumption in Column C, which is an important figure.

When I was on the stand before you asked me if I knew what two states had quit producing natural gas between the interval of 1930 and 1931. Those two states which were dropped from the column as between those two years were Iowa and North Dakota. The reason they were dropped was that the total production of both Iowa and North Dakota was only about 100,000 M. C. F. per year. They never did produce very much, as far as I can learn; but whatever they were producing they must have quit,

1635 or they wouldn't have been dropped. They got to such a low point so that it was no longer of any consequence. 100,000,000 cubic feet would not be of very much importance in that industry as a whole. That is not an unusual thing to have happen to a gas field. I think it is one of the natural characteristics of a natural gas field, to become exhausted sometime. They always quit sooner or later.

Schedule No. 4, for the years 1928 to 1937, shows the natural gas transported to the State of Illinois. I think that refers to the gas that is brought into Illinois and there distributed. In other words, it does not include gas which goes through the state in a pipeline. I don't know as to the particular importance of that in arriving at a proper rate of return. I thought it shed a little economic light on this question. I don't attach a great deal of importance to the schedule. However, if I left it out, more

than likely someone would ask to have it put in, and that is why so many of these things are put in there. I have had a great deal of experience in testifying as to rate of return, and I try to anticipate these things.

You asked if I thought you might have asked me to put it in. I thought you might have asked me about the gas which comes into the State of Illinois. I thought it might be of interest. I have had questions by examiners and others relating to information similar to this. I think it is a picture of gas which goes into Illinois and where it comes from.

I have included in this exhibit special charts or schedules at the suggestion of members of my staff. I don't think of anyone else who has made such suggestions.

I recognize that the revenues to natural gas pipeline companies selling at the city gate at wholesale are not included in the figures shown in Schedule No. 1. These are only the figures pertaining to distribution companies. I do not have available figures which would show the same character of information for natural gas pipeline companies selling gas at wholesale at the city gate. I would refer you again to Schedule 3, Column C, which is the nearest approach to that problem I could get. I think those figures include the total consumption of natural gas. I think it includes all natural gas and not just those companies whose purchasers distribute natural gas alone to the exclusion of mixed gas.

Schedule No. 3 does not give the figures as to revenues. It deals with volumes. I say that is the nearest approach I can get in answer to your question. We have filed with us the total quantities of gas that are sold by these pipelines at the city gate and total revenues received from the sale of that gas for one period; namely, June 30, 1938. We expect starting from that date on to compile statistics of the kind you mention. We aren't in this long enough to have as yet reliable statistics. We know the price prevailing today of all those transactions which are interstate commerce, including all of those who are transporting gas in interstate commerce from the Texas Panhandle field. I have made no comparison of the prices received by the other companies which are transporting gas from the Texas Panhandle field to the prices now being charged by defendants. I don't know whether they are higher or lower. I think that comparison is one of the things to be considered by the Commission in adjusting rates. I don't think it has

anything to do with the rate of return specifically. This is an effort to regulate the rate rather than the rate of return. I am not sure I am the witness to give you the information. I certainly think a complete rate case includes a good deal of information about the price of
1636 gas. I have no doubt in due course information of that nature will be presented. We have the information if you want to compile it in schedule form. It is a pretty difficult job with a small staff.

Returning to Chart No. 3, it appears there that, throughout the year, there is greater fluctuation in domestic than there is in industrial and commercial use of gas. Over a period of years domestic is more stable. As a matter of fact, these uses to which gas is put for domestic and commercial purposes go on when times are good and when they are bad. The curve showing the volume of gas used for domestic and commercial purposes is the least sensitive to business conditions, because people will eat and the hotels and restaurants will cook and serve food even if times are not so good.

The industrial curve is very sensitive to business conditions. You asked if in that sense it is not rather difficult to draw a conclusion from the course of the curve showing total volume of gas used for domestic and commercial purposes in comparison with the curve showing the course of industrial production during a period of extreme business depression.

This morning I tried to correct that by showing you how the trend of the total volume of gas, including natural gas and industrial, went from 1929, the last year before the depression. I will give it now if you want it. Chaining all of them together, 1929, that is, the natural gas, domestic, commercial, and industrial, because that was the last year before the depression, then if we include the industrial volume with domestic and commercial, we find in 1930, 1931, and 1932 the trend went downward reaching a low point of about 108 in 1932; it was almost the same for 1933, then it shot straight upward, reaching a figure of 165 in 1937, much higher than the manufactured gas index, a much higher figure than the industrial activity index, a much higher figure than the natural gas index of domestic and commercial sales.

There isn't any question that there is a greater volume of natural gas being handled in this country than there

is artificial gas. As a matter of fact the trend also was upward. The curve represents the volume and trend. A curve is given for the purpose of showing trend over a period of years. It is based on the volume of sales for the industry. I think by chaining it together in 1930 and using an index we make a correct comparison. This is an index as we have computed it, and not the absolute volume.

You asked if I think it is unsafe to use a curve showing the total volume of gas sold for domestic and commercial purposes, which I have stated is liable to be more stable during the year than industrial gas even, and to compare that with the curve of industrial production, during the period of the depression. I don't think so. Certainly the compilers of the chart didn't think so or they never would have put it out. I think it is a proper comparison.

Going to Schedule No. 5, I have included in that schedule a list of 31 companies. I have selected those companies for this list on a basis of two characteristics, one in the alternative. They had to be either transmission and production companies or transmission or production companies, one or the other, and to have an annual gross or net revenue of two and a half million dollars.
1637 That isn't quite accurate. In other words, they had to have production and transmission, or transmission without production. I excluded those which had production without transmission. I included all of the pipeline companies in the country which had those common characteristics that we could get except a few companies which were predominately engaged in some other business and which had some pipelines but whose securities we thought would not be in the same class as the securities of the companies I have listed here. I may mention Pacific Gas and Electric, the Montana-Dakota Utilities which you mentioned this morning. The Montana Power Company has some transmission of natural gas.

You asked if Montana-Dakota Utilities has most of its assets tied up in natural gas operations. Not to my knowledge, but I am not sure. My dealing with this company thus far has been in connection with the electric business. I am not prepared to say at this time what proportion of its business is natural gas, if we have a record of the proportion. We did not have any information which was available, but in the nature of its business I know it does have substantial electric business. It is written up in

Moody's Manual. I think it had a lot of difficulty about some financing a few years ago.

These companies all have those common characteristics I have mentioned. There are two of them which, upon reconsideration, we probably ought to eliminate. One of them I mentioned at the time I gave my direct testimony; namely, the South Penn Oil Company, and one that I think was referred to as being one of the largest natural gas companies east of the Mississippi River. Subsequent investigation on my part discloses that it is primarily an oil company; and the oil business is so large in comparison with the natural gas business, I think we ought to exclude it. That company has a very large percentage of its total revenue from oil. You will recall I had some question about that at the time I gave my direct testimony. The other company is the Indian Territory Illuminating Company. I don't think that that one should have been included because I don't think it has any transmission to speak of. It has gathering lines and sells its gas in the field. It is a production company, producing in 50 Oklahoma fields and several fields in the Texas Panhandle. It sells to 12 utilities at various points in Oklahoma and to three utilities at various points in Texas. While it does have gathering lines, I don't think it has any transmission to speak of. It has some oil business also.

On Schedule 5-A, I have listed here only seven companies. I show in that schedule all the bonds which were held by the public of the 31 companies shown in Schedule 5. Then we give the market values for those particular bonds, debentures, and notes, wherever I could obtain a market quotation. Those seven constitute the group, out of the 31 companies listed in Schedule 5, that have bonds outstanding in the hands of the public.

The Houston-Gulf Gas Company produces gas in Texas, and it purchases gas from 12 companies and individuals operating in six Texas counties. It sells gas for industrial use, and has a pipeline extending from the fields in south Texas to Houston, Texas; 482 miles of line. It sells all or a substantial amount of natural gas requirements to 18 communities, including the City of Houston. It produces gas in five Texas fields, according to its report to the Federal Power Commission. I don't know whether these five fields are in different counties. That company is
1638 part of the group of companies known as the United Gas Corporation and it is one of the Bond and Share

companies. The United system produces gas in a great many fields in Texas, Oklahoma and Louisiana. I think the Houston-Gulf Gas Company is tied into the system. You asked if in case of an emergency it would have access to the reserves back of the whole system. It buys most of its gas today, and does not produce it. I think it buys it largely from the United and other members of that system.

The $4,238,000 of First and Collateral Six Percent Mortgage Bonds, maturing in 1943, are undoubtedly senior to the Debentures, due at the same time. In showing there the times fixed charges earned in 1938 these senior bonds are grouped with the debentures. We would get a different result if we were to calculate the times interest on the First Mortgage Bonds. I wish we had the figure. We could not get it at the time this figure was prepared. We had the earnings and the income statement. We took the total interest requirements and that was covered 1.30 times. We did not have the interest in the income statement broken down. There may be some difference between the interest in the income statement and the interest on these particular items. It is simple enough to calculate interest on $4,238,000 at 6 percent if those bonds were outstanding in that amount all the year. This 1.30 does not apply to the First Mortgage Bonds; it applies to the two issues, and we show that very clearly.

A purchaser interested in buying some of those First Mortgage Bonds would concern himself about the coverage for the First Mortgage Bonds only. He would be interested in stuying the general financial structure of the company. I did not prepare this part of the exhibit. It was prepared by others under my direction.

You asked if I am sure I did not have available the amount of the interest on the issue of First Mortgage Bonds. In the report which they prepared for me, they did not show it; and I assume it was not available, because in other cases they have shown that information.

You have handed me Moody's Public Utilities Manual for 1939, which has been mentioned before. It gives on page 2073 the times charges earned as 1.30, the same as we have shown on this chart. The point I make is that to be sure of your figures you just can't take these figures here and make a computation. We have the debentures here. But, you get other interest deductions of $220,000. These bonds may not have been sold at par; they may

have been sold at a discount. The effective rate may be far different from the six percent. As soon as you try to interpret this kind of a situation, dealing with those figures, you may go astray, and you may go astray badly. Moody shows the times charges earned. That is exactly what we show in this schedule. I am not sure that the data is there from which you can find the times interest earned on the particular issue, because we have other interest charges there which amount to $220,000. I don't know what they are, I don't know how they rank. That is in addition to the debenture interest of $120,000. They may be prior, they may be afterwards; but there is nothing there on which you could make any assumptions to arrive at any other figure than the 1.30, which we show. The investor would more than likely try to get the correct information from some source. He would be foolish if he made any interim calculation based on that calculation.

1639 Moody lists the bond interest right here in so many words, but you can't tell what the bond interest includes; interest on this and what? It does not give the effective rate of interest. The latter must take into consideration any discount. Again, which is more important, it shows $220,000 of interest in that statement which I can't classify. You can assume that interest comes after the bond interest, but that will be an assumption. As an accountant I would not make a computation such as you asked for and certify to it because there would be too much guess work involved.

You asked if I can't turn over to the second page and see exactly what it is. Not to my knowledge. I would be glad to look if you will hand me the record. (Document handed to the witness.) This gives the details as to the bonds outstanding; outstanding Series A at the end of the year, $4,238,000; retired, $6,672,000; and gives the date, April 1, 1930, and due interest date, and describes the sinking fund provisions, and so forth. That is not the information which I would need to make a statement and certify to it as correct.

I would say if any member of my staff did that, he would be wrong, as Moody would be wrong, instead of doing it as contained in the statement you have shown me. He didn't do it, Moody didn't do it; and undoubtedly Moody had a great deal more information on the subject than

set forth in the data here. Yes, Moody stated the earnings here. Ordinarily, the bond interest does not include amortization of debt. It is described here as interest; but in the income statement amortization is included. That is what I am afraid of. No, I can't take the information here and figure out the earnings times bond interest. You gave me an income statement to review, and you asked me to figure the interest in the income statement. I asked you if you can tell me if there is any amortization in that account. If you can't tell me, I would not know. All I can do is to follow Moody's method and arrive at 1.30; and with the qualifications I have mentioned the best it will show is that as to the First Mortgage Bonds, as far as the First Mortgage Bonds are concerned, that is times interest earned on those bonds. I have not shown that.

You asked if anybody who knows enough about it can take these figures and tell what the earnings times interest on the bonds would amount to. I can give you an answer, if you are willing that I should make certain assumptions. Since you say you do not want me to assume anything, I can't do it. I must refuse to do it because it would be unprofessional for a man of my reputation to do anything like that. I have certified to many statements in my accounting career, but I can't certify to anything like that without making some assumptions.

I would have to assume that the interest shown there is all interest on the bonds, no amortization; that the interest is on the bonds outstanding all the year, and solely on the First Mortgage Bonds; and none of the other interests shown in that statement comes ahead of the interests on the First Mortgage Bonds. You suggest that the volume shows exactly what I say I have to assume. It does not show that at all. It does not show it for the $220,000 interest. It shows it to be bond interest. It says bond interest, debenture interest and other interest. It would be an easy matter for me to make that assumption. If you will tell me that is correct, I will accept your word for it for the purpose of the computation, but I can't say it is correct.

1640 This is the statement for the year 1938: Gross income, $770,143; that the bond interest was $254,280. Assume that that represents the bond interest on the bonds which Mr. Morgan referred to, and assume that all the other interests of $340,000 properly come after that bond

interest, and assume that there is no discount in that figure of bond interest; then the bond interest was earned slightly over three times. It was earned 2.54 times. Yes, that is very different from 1.30, but I never said that the 1.30 was the earnings on these bonds. I resent any implication that I made any suggestion of that nature. I can't do any more than to emphasize my statement that it is more important to the man who wants to buy a bond to know what the earnings times bond interest are.

In the next column we show the percent of funded debt to capitalization, December 31, 1938. It includes indebtedness at the end of the year, what is commonly known as long-term debt. In that case it would include bonds and indentures, and income notes, if any such were outstanding.

First going to the quality of those First Mortgage Bonds, the important thing is to know what percentage of the total investment was represented by those bonds. That is true if we are dealing with the bonds alone.

You asked whether in appraising the bonds from the standpoint of an investor who you say is interested in getting his interest, and who is concerned about the percent of indebtedness represented by the issue of bonds and about the earnings times interest on the whole issue, he would not have to have the percent of the total investment represented by the issue of bonds as well as the earnings times interest. No, he would have to have the relationship of the funded debt to plant or total securities outstanding in order to rate the bond, compute the yield, or anything like that. In other words, he would want all the characteristics of a bond which Moody takes into consideration in rating bonds; that is, the ratio of the bonds to plant, or ratio of bonds to outstanding securities. An investor would want to know that in passing upon the quality of the bond and in determining how much he is willing to pay for it. It is true that earnings times interest and the percentage of total investment represented by the issue in which the bond falls would enter largely into what he is willing to pay for it; but they are both relative to other facts. The are both mighty important points to be considered by any investor. Neither one of them is shown on this exhibit. The ratio of First Mortgage Bonds to plant, per books, the gross plant, without the deduction of the reserves, is roughly 25 percent.

I wouldn't say that the investors who bought the bonds at the quotation I used in computing the yield required a

yield of 5.13 at the time they bought them. That is the yield they got; bearing in mind that the bond was selling at that time above the call price, which is always a factor to be considered very seriously; because that bond could be called at 101½; and the investor might lose right off the bat if he paid 103 for the bond. That was the yield that was in the prospectus and was based on the 1938 earnings. I used the 1938 earnings because you use the most recent earnings when you take a market value as of a recent time; and 1938 was the most recent earnings which we had for which we could get comparable figures. This exhibit was prepared about September 30, 1939. I don't know that the earnings for a large part of 1939 were then avail-
1641 able and published in sufficient detail. Yes, I note that Mr. Knapp in his computation in the last two exhibits brought in here did use very recent information concerning earnings for 1939 in making up his exhibit. They were four electric utilities; and those statements he compiled after the direct testimony in this case. And then again, there is something else which I ought to mention here, and that is that a part of this exhibit, and undoubtedly a large part of it, was compiled before September 30. What we did was to compile the exhibit as far as we could go, and at the last day, before getting ready to have the exhibit reproduced, we put in the computation for that date.

I am not prepared to say that the man or men who bought the bond or bonds involved in the transactions on September 30, 1939 had published information available to him, showing the earnings down to a comparatively recent date. It is true that business in general has had a considerable step-up so far as earnings are concerned in 1939 over 1938, and I think I testified to that effect. If I had used the 1939 earnings, I would not have set up a higher yield when the bond is selling about call price. I stated on direct what the call features of the bonds were that were shown on Schedule 5-A. As to the bonds shown here, it would not make any difference in the yield shown. The yield we show here is the actual yield, based wholly upon market prices of September 30.

When it comes to the earnings price ratio you are talking about common stock undoubtedly, not bonds. This 1.3 times interest earned has to do with the fixed charges. If it be confined to the interest on the prior issue of bonds and on the indentures, the ratio would be higher but I can

not say that that would be the correct thing to do. If it had been the correct thing to do, Moody would have done it that way. The very fact that Moody did not show it indicates to me that there must be some reason for the failure to show it that way, because the information is important. I think that that emphasizes the reason why they show it that way.

You asked if it does not show the debenture interest in plain words. It shows the total fixed charges earned, 1.30, and it also shows the interest on the debentures and the interest on the bonds. And using the same assumptions that I made in calculating the ratio of earnings to the interest on the bonds, I could find the ratio of earnings to interest on both issues. It would be over two times. That is with all the assumptions which I have previously stated.

If I computed the total percentage of the fixed capital represented by the two issues instead of by all of the funded debt, I would get a lower percentage than 43.8. I would get about 33⅓ percent. And with more than two times coverage of interest on that issue and prior issues, and only one-third proportion of the entire capital represented by the two issues, these debentures sold for a yield of 5.9. That is true with the qualifications I have given. The market price on September 30 was sufficient to yield 5.9 to maturity. These debentures were selling above the call price. These debentures sold for 102 and the call price was 101½.

Passing to the Oklahoma Natural Gas Company, First Mortgage Bonds, three and three-quarter, 1955, sold in August, 1939, the total outstanding was $17,000,000 all sold to the public. No, I do not know what the earnings times interest on that issue are. I would not know unless I had a pro forma balance sheet prepared to show all the
1642 facts, because being issued in 1939 the most we can show is times fixed charges in 1938. I would not calculate a pro forma balance sheet from such information as is given in the prospectus filed with the S.E.C. I will accept it, but I would not make a calculation on it. Bear in mind that the pro forma balance sheet has been condemned by itself because of abuses during the 1920's. The American Institute of Accountants has warned all accountants to be most cautious in preparing anything of that nature. If we had the figures I might accept them, but I would not certify to them. It has to be upon a pro forma basis be-

cause it deals with the future and dissemination of things in the past. You have to be on the ground floor in order to make a proper kind of study and to be sure you are right.

You asked if in getting down to earnings as applied to First Mortgage Bonds, we are not dealing with the first call on those earnings. My answer is, sometimes, and sometimes not. There may be senior securities underlying those securities frequently. I don't think there are in this case. I don't think it is true in this case, but there are cases in which it would be true. Yes, they might be First Mortgage Bonds and still have senior securities. For instance, in railroad financing First Mortgage Bonds are frequently subject to senior securities, subject to what we call underliers, which are senior on certain properties and on certain earnings, as especially in the case of mergers.

They are First Mortgage as to the earnings of the particular company who issued the First Mortgage or some predecessor. It may be a predecessor, especially in the railroad business. It might not be a First Mortgage Bond with a superior indebtedness standing ahead of it, but it might be called a First Mortgage Bond with underliers standing ahead of it. I have found that situation many, many times in my dealings with financial affairs. I have found First Mortgage Bonds with a superior indebtedness ahead of them; for example, First Mortgage Bonds in railroads, with underliers ahead of them on specific property and specific earnings, many times. That is not an unusual thing at all.

In order to find out what the earnings times interest is and what the percentage of coverage in the matter of property concerned is, first, I will study the statements in the prospectus. After that I would get the proper information from such reports as are filed with the Federal Power Commission. When these reports come in I can make the calculations easily. This is the first year, 1939, and anything we can find out is information on the subject.

You have handed me a prospectus and asked that I tell you what the earnings times interest is. If we don't find a pro forma statement here in the prospectus, I certainly can't make a calculation here on the witness stand. But I would like to read something here from page 6, which is this comment: "Gross income, being the balance applicable to interest and debt retirements before income taxes, etc." Then we have a note: "Excludes estimated Federal and

State normal income tax, Federal Excess Profits Tax, aggregating, $237,000." Then in a note to that, which goes on, it shows that qualification all the way through; it says: "See page 47 for information." You are asking me to do something which requires careful consideration. You stated you asked me to do it only because I said I could take the prospectus and find out earnings times interest. No, I said that is ordinarily given in a prospectus; but I don't see that there is any statement of that here, or a pro forma income statement, such as we prepare in all security issues. If there were, I would be glad to accept the statement here.

1643 You asked if there was any way I could figure out earnings times interest on that First Mortgage Bond issue. Yes, I can do it if you will let me go down to the company's office. I can do it and I can do it easily. I have prepared many such statements.

As to how investors would do it, they ordinarily would take someone's word for it. He would get the information from some stock broker, some investment house. It is compiled in a good many places. It is compiled very frequently in Moody's. I said it would be very important for the investor to know those things before he bought the bond, but I did not show them in this instance because it was not available to us, at the time we made this statement.

If it were a matter of fact that the earnings times interest on that issue of bonds was 4.74, the bond buyer would indeed be interested in knowing that. He would be more interested in knowing that fact than he would be in the fact that the earnings times all fixed charges, including those junior to the issue that he was interested in, were 1.91. He ought to have both figures.

I can add something to that, which would perhaps shed some light on the thing. These bonds are rated Baa, you notice, by Moody's; and they were yielding a 3.55 percent as of September 30 when bonds were selling somewhat off, Baa generally in the electric utilities were selling at 4.39. Those bonds were selling below the Baa public utilities generally.

You asked if that was a direct answer to some question you asked me. That is just bearing on the question you asked.

The funded debt shown here, 56.87, is not the funded debt of particular bonds. Right there I think I better stop a moment and speak about the natural gas industry's re-

serves. We have reserves, depreciation and depletion reserves in natural gas which are very important which must be considered. It is customary in most instances to publish the debt ratio to total property, and yet that has been seriously questioned in regard to natural gas companies, because depletion is so heavy.

In this particular case the retirement in reserve is $11,000,000 of a gross property base of $57,000,000. Under the $57,000,000 there is a very large item of $13,000,000 of franchises, gas contracts, and intangibles, so when you get back to a debt ratio, a debt ratio standing by itself with nothing else is not as informative as it might be. The other information given here is much more informative than the mere 56.87 or some smaller figure, the ratio of $17,000,000 of bonds to the gross plant, book plant of $57,000,000.

Questions Interposed by the Examiner.

It would reduce this figure considerably, of course, if you take these things off.

Cross-Examination by Mr. Morgan Resumed.

You asked if I set them up that way in my exhibit here. We took Moody's statements. I could be very critical of this company if I wanted to, of some of the items contained in the statement. I could restate it in my own state-
1644 ment by deducting the reserve. I think for natural gas companies you probably ought to do it, but I haven't gone that far as yet.

Questions Interposed by the Examiner.

You asked what the Examiner should do with respect to each one of these companies in that event. I think if you make any conclusions on it you have to consider the reserves, particularly those reserves which are due to the exhaustion of the natural resources. The exhibit gives simply what is contained in Moody's. It does not give those facts. It applies particularly to the bond indebtedness. It is not the intention to submit such information. When I am pressed by the Judge as to ratio I think I may call out the pertinent figures and then you will have them in the record. I have given the figures for the Oklahoma company.

Cross-Examination by Mr. Morgan Resumed.

The bond investor would be interested in knowing the figures for earnings times the interest on the issue of bonds in which he is contemplating making an investment. That information is not in my exhibit. That is not near as important as the yield. The yield is the real important figure on this exhibit.

I have said that in appraising that bond before he bought it at that yield he would be very interested in knowing the earnings times interest and the percentage of total fixed capital represented by the issue of bonds. He can get that indirectly by looking up the classification for the bond. Moody's ratings, for instance, take most of those things into consideration. It takes into consideration this item of intangibles, which I have spoken of. I think the significance of this chart, as I understand it, must be tied up with my statement in direct testimony of the dearth of satisfactory information appertaining to pipeline companies. We have to reason by analogy. I show the rating of Oklahoma Natural Gas as Baa, 3.55. I stated before you can go to Exhibit 185 and see Baa under Oklahoma Natural Gas Company, and find that the yield of Baa bonds is 4.39.

In the case of Panhandle Eastern Pipeline Company, whose bonds are rated at A, you can go to Exhibit No. 185 and you will find that Class A bonds were selling at about 3.41 in August. That was before bonds went up in September, and you will also note that the bonds of Panhandle Eastern are selling above call price.

I think that is the way you have to use these things in arriving at a determination. All the information must be considered. It is not an isolated fact.

No, I don't think the big investors would be more apt to be governed by Moody's rating on the bond than he is by the earnings times interest on the issue and prior issues and the percentage of the total fixed capital represented by the issue and prior issues. The small investors, average size investor would. The large insurance companies have their own investment departments. The other investors rely a great deal upon Moody's ratings. I have no idea whether big investors or small investors bought these bonds here. The Houston bonds and the Oklahoma Natural Gas Company bonds are both Baa. One sold at

a yield of 5.13 and the other at a yield of 3.55. I think the fact that the Oklahoma Natural Gas bonds had earnings times interest in the ratio of 4.74, while Huston
1645 Gulf had only three times coverage, entered into that difference. I do think the percentage of total fixed capital represented by the issue entered into both of those transactions. And I anticipate that the Oklahoma Natural Gas bonds, to continue, will get a rating of A.

Questions Interposed by the Examiner.

The Oklahoma Natural Gas bonds are rated Baa and were selling on September 30 at 3.55. By referring to Schedule No. 4 of Exhibit 185 you will find that Baa public utility bonds were selling at an average yield of 4.39 in August of this year.

Cross-Examination by Mr. Morgan Resumed.

Passing now to the bonds of Panhandle Eastern Pipe Line Company, First Mortgage, Series A, four and a half, 1952 bonds, that may be a typographical error there. Those might have been 4 per cent bonds instead of four and a half. I would be glad to look that up. They are refunding bonds, I understand. I do not know what the figures are in that instance as to earnings times the interest on the issue of bonds. The same explanation as to why I haven't got it here would be the same as that for the other two issues considered. But that wouldn't affect the yield shown, in my opinion, though. It wouldn't affect the yield on the date on which I show, namely, September 30, 3.63, and when the bonds were selling above call. It would substantially affect the price that the original purchaser paid.

I am not saying that the man who buys the bonds afterwards would not be interested in that at all. My statement, whether it is 3.33 times or 5 times or 10 times, the fact does not change the figures shown in the last column. If the purchaser had bought the bonds at a different price that would have changed the figure in the right hand column. I think you mean that the times interest earnings affects the cost of money to the borrower, and it does. It affects the price that the investor will pay and in that sense affects the yield. It is true

we haven't this information on this exhibit as to that Panhandle Eastern bond; but that is why I am afraid you are indicating that yield would be different. I am clear that if I had the information this yield would not be any different than we show here. It might be true that we would have some explanation of the yield
1646 that we haven't got here. It would help to explain the yield. Also, the correct percentage of the total investment represented by the bond issue would help to explain the yield. In the case of Panhandle Eastern, the ratio of bonds to fixed capital was about 40 per cent, and giving effect to the assumptions that I spoke about when we were talking about the Houston Gulf Gas Company bonds, the earnings times interest on that issue of bonds would be about 4.63. There again I must repeat that the bond is selling at higher than call price. The yield is about the same as public utility classification of A bonds, when you consider selling above par, and that the price was as of September when bonds generally were selling off. That yield does not indicate the cost to Panhandle of the money raised by that bond issue. It is indicative of what the Panhandle Eastern could finance at today by taking into consideration the usual cost over and above the yield to investors. I don't know what the actual cost was to the Panhandle Eastern at the time it issued those bonds. I am familiar with the document you show me, "Security Issues of Electric and Gas Utilities, 1935, 1936, 1937, and 1938, Report of the Securities and Exchange Commission, Washington, D. C." The cost to maturity was 4.46 for the bonds issued in March, 1937. There we are comparing different periods of time. There is two years' difference, and in the meantime the bonds have gone from 4.23 yield to the public down to 3.63 and are selling above call. Those conditions make all the difference in the world. That makes a difference of .23 between the cost to the company and the yield to the investor.

Passing now to the Southern California Gas Company, First Mortgage, four per cent, 1965, $15,000,000 issue, and First Mortgage four and a half per cent, 1961, $12,500,000 issue, we have grouped the two together because they are both secured by the same mortgage. As far as I know, they are both the same indenture and one supplements the other. No, I do not know what the earnings times the interest was in the case of these two issues.

I know the earnings times fixed charges was 5.29, which, of course, is a very nice ratio. I don't think it would make much difference if the ratio were higher than that, because there is a limitation upon the earnings ratio after it gets beyond four and one half or even four per cent; the effect of the increase diminishes greatly. I have no reason to question your statement that the times interest coverage in that case was 6.43. It appears to be true that the total per cent of fixed capital represented by the two issues of the bonds was about 20.83. It turns out that these two bond issues are all of the funded indebtedness of that company and the following company. Those two companies are very large distribution systems. They are more than that. They have distribution and they are large companies, the Southern California Gas Company being very large. The latter company transports and distributes natural gas to and in Los Angeles, San Bernardino, Ventura, Kern, and Fresno Counties in California. That is a great metropolitan area in southern California. It gets its gas from some fields down there in Kettleman Hills and around in that section, not a great distance from Los Angeles. Yes, it produces gas in Buena Vista Hills field, Kerns County, California. It purchases gas from a good many companies. The company transported 21,000,000 M.C.F. in round figures of gas for 29 companies in various parts of its system. It has 770 miles of twenty-six to four inch transmission lines, according to statements filed with the Federal Power Commission. A very, very large per cent of its revenue is received from retail distribution. It is transporting this gas for 29 other companies for hire. It is not unusual at all in the gas business. It purchases gas and transports it along with its own gas to its own retail market, but it transports it for others, according to the statements to the Federal Power Commission. The company produces and purchases about 93,000,000 M.C.F. and 21,000,000 M.C.F. of that it transports for hire. It makes whatever disposition of this 21,000,000 M.C.F. it transports for these other 29 companies that they want made of it. It delivers it for them. I don't know whether there are 29 distributing companies within the areas served by that company's pipeline. It is a distribution company. I know the company reports to the Federal Power Commission on the Commission's Order 51 that it transports a total of 21,-

000,000 M.C.F. for 29 companies at various points within the state of California. That is as much detail as I can give. I have said that was not unusual practice among natural gas companies. I have in the file of the Commission many reports showing that they transported gas for others. I can't name the other companies offhand. That is one of the questions which we ask in our questionnaires and get a lot of affirmative responses. I am unable to say whether any other gas pipeline ever transported gas out of Texas for hire.

The next bond is Southern Counties Gas Company of California, First Mortgage four and one-half, 1968, $11,500,000, Aa rating. The times fixed charges earned in 1938 appears to be 3.58. It may be, as you say, the times interest involved in that particular issue of bonds, is about 3.89. I have given, as I said before, times fixed charges earned. 37.24 is the total per cent of the fixed capital represented by the issue of bonds. That company also is engaged almost exclusively, so far as its revenue is concerned, in the business of selling gas at retail.

That leaves one other company, Southern Natural Gas Company. It has two bonds, First Mortgage four and one-half, 1951, $12,939,000, rated Baa, and an Adjustment Mortgage six per cent, 1960 maturity, rated B. I think the first mortgage series are superior. The company got into difficulties and was reorganized and the adjustment mortgage bonds came out of the reorganization. Under the column "Times Fixed Charges Earned" they are grouped together in the exhibit. I do not know what the earnings times interest on the first mortgage series of bonds was. I haven't the information on that just as was true in the case of the others. The gross fixed capital in round figures, $30,000,000, and the amount of the bonds is $12,000,000. That would make about 40 per cent of the total fixed capital represented by the bonds. Yes, you would have to add to that issue of bonds $616,000 not placed with the public in order to get the real coverage, which would be about 40.5 per cent of the total fixed capital. Of course, that company went through reorganization a few years ago and again its bonds are showing a yield of 3.90 although they are rated Baa. The public utility Baa went to 4.39 in August. I haven't the data to show what the percentage of coverage is. The fact that it is engaged in an intensive load building campaign and has

prospects of additional developments doesn't give its bonds a speculative value as well. It might give the securities as a whole some speculative value. The company has been in difficulty, undoubtedly. There are better hopes for it after the reorganization, but it has a line going from the Monroe and Richland field in Louisiana over to Atlanta, Georgia, and another line in Georgia going off the main line to Selma and to Columbus, all pretty long transmission lines. I think a yield of 3.90 for that particular company is certainly a good yield.

You ask if, in the light of the circumstance that those Southern California Gas Company and Southern Counties Gas Company of California bonds are based on an income derived almost 100 per cent from the sale of gas at retail as opposed to the selling of gas at wholesale on a gate rate, we couldn't get closer to the natural gas pipe-
1648 line situation if those companies were eliminated from the exhibit. I think you could find other companies somewhat closer. As you have stated, these companies have large retail distribution. It must not be forgotten, however, with their large investment in transmission properties, if anything happens to producing and transmission companies, they would be in a serious condition because of the large investment in such properties. It affects the over-all rating. This is not a pure producing and pipeline company such as the companies we have here under consideration. I think it is true that they have a very large proportion of their total investment in facilities which are convertible to manufactured gas facilities. If those two companies be eliminated it changes the average. I really think a comparison ought not to be so much with the average as with the individual companies. Averages are so frequently misleading. For instance, there is a serious question in my mind as to whether any such bonds as the Adjustment Mortgage bonds of Southern Natural Gas Company should be included in any average showing the yield on bonds of natural gas companies because of the circumstances surrounding their issue. You have questions in all these companies which make it necessary to weigh each individual company.

I refer again to the Oklahoma Natural Gas Company. The Oklahoma Natural Gas Company I believe was in a holding company system up until 1936. It had a little disturbance there when the stock was distributed to individual stockholders. I want to give the Examiner the information

that if you take just one average and use that exclusively you are not likely to get the right answer in determining a proper rate of return; a great deal of judgment has to be applied. The real evidence of the investor's appraisal is, of course, in the last column, the yields. What information the investor had which enabled him to make the investments, of course, that is a different question. He undoubtedly would have Moody's rating and would rely considerably on those unless he had the services of an investment counselor or an investment department such as you have in insurance companies. As to the appraisal by the investor of the yield that he ought to have on his money and the security he should have on his money in the form of earnings times interest, you asked if I wouldn't be more apt to get at the actual thinking of the investor along those lines if I had used 1939 earnings instead of 1938 earnings. You mix a couple of things. I want to go along with you but some of the language you use would put me on the spot if I gave you a direct answer. Certainly, the investor's appraisal as to security of interest and security of principal relates directly to the times interest earned and to the relationship of his security, the security outstanding, of which he owns a part or all, to the plant and to other capital of the company. Yes, he buys it on the information as of the latest time he can get the information, and he will frequently attempt to make a forecast. That forecast is not speculation; it is based upon economic studies. You ask if he had available to him published figures as to the earnings in 1939 whether such would be of more help and would be apt to lead to the more correct result, in weighing this element in considering a proper cost of capital. I repeat, the most recently available information is the best information on which to base your judgment. The disturbance to which I referred a moment ago in connection with my discussion of the Oklahoma Company occurred when the holding company distributed the stock to the stockholders. All those things help disturb the securities temporarily until they become stabilized. Any major transaction affecting securities will have some effect upon them. The fact that these securities were selling on the market at a yield of 3.55, selling above call, shows that the investors consider these securities as good.

1649 Schedule 5-D has to do with preferred stocks rather than bonds. This page of the exhibit shows the Total Outstanding Poor's Rating, Times Dividend Requirements

Earned 1938, Times Fixed Charges and Dividends Earned 1938. The difference between the times dividend requirements earned and the times fixed charges and dividends earned is due to the circumstance that the great bulk of fixed charges, like bond interest, and so on, is ahead of the preferred stock. The column Schedule 5-D headed "Times Fixed Charges and Dividends Earned" includes the interest charges not only on first mortgage bonds but on debentures, notes, and all other interest charges that come ahead of the dividends and the preferred stock requirements. I should say that all these interest charges are senior to the preferred stock charges. That is the normal situation. In this instance, as in the case of the bonds, we use the earnings for 1938 rather than the earnings for 1939 as a basis of comparison. I don't know which of these issues of preferred stock were new capital issues as opposed to reorganization or refunding issues. I haven't that information. I should think it would be available for the recent issues. Whether available for some of the older issues or not, I don't know. My exhibit doesn't show just when the issues were put on the market. Ordinarily, Moody's Manual shows when the securities were issued. I didn't think it was necessary to have that information worked up because the current yield is the important thing in this chart regardless of when the securities were issued.

Schedule 5-F has to do with transactions in the common stocks of some of these gas companies. From that I have eliminated two companies which I have said ought not to be in this exhibit, namely, Indian Territory Illuminating Oil Company and South Penn Oil Company. It appears that on the common stock of El Paso Natural Gas Company the earnings per share were $3.30 for the year 1938. I do not know what the earnings per share for the year ending July 31, 1939 happen to be. I haven't anything with which I could check your figures on that. The term that corresponds in common stock transactions to yields on bonds is price earnings ratio, plus one other thing, the dividend payment. The price earnings ratio is not conclusive because the dividend payment of the corporation has an effect upon the market value of the security. A good many investors buy for a short term. If the earnings are large for a short term and dividends are not paid out they do not benefit from the increased earnings in the way of dividends; so the dividend policy must also be considered. If the earnings per share for the latest twelve months published prior to this

transaction here, namely 12 months ending July 31, 1939, had been 3.77 instead of 3.30, the price earnings ratio would have been changed. It would be higher. There again you must not overlook the fact that the equity stock of El Paso Natural Gas Company selling at 40⅝ is greatly in excess of the book amount of 12.36 for common stock for natural gas companies. That isn't a particularly favorable situation. It has a great deal to do with the market value of the stock, tending to keep it down. We included the Houston Gulf Gas Company because we show in Schedule 5 that certain of the common stock of that company was owned by the public and Schedule 5-F ties in with Schedule 5. Its stock did not have any market value in 1938 of which we could find any record.

Going on to the Interstate Natural Gas Company, total shares 952,953, I do not know what earnings per share for the year ending July 31, 1939, happen to be. In order to arrive at the investor's reasons for paying the amount he did for that stock it would be nice to know that; it would be worth having. As a matter of fact, it would be worth having up to the very date of this quotation, although there is a great deal of diversity of opinion as to just what average you should take into consideration in computing earnings and also in computing prices in establishing your per cent of earnings to quotations. The investor would try to get up to date information, the very latest data available. This particular per share earning in the case of the Interstate Natural Gas Company was 2.13.

1650

Now, in the case of the Manufacturers Light and Heat Company we did not have any available data as to the quotations. The 3.96 we use here was earnings per share. That is all right. Without the quotations you cannot compute it. I believe we used the 1938 earnings per share figures in the case of Oklahoma Natural and in every instance. I believe it is true that we used transactions in the months of September and October, 1939, in arriving at our price earnings ratio. We related the price in September and October, 1939, to the earnings in 1938. The average, 7.33, was a weighted average based upon the amount of stocks outstanding as reflected by the books. The weighting was in proportion to the total amount shown as outstanding in the second column of figures. Having used an amount paid for the stock in a market transaction as a basis of arriving at the price earnings ratio, it certainly would have been one acceptable method, and perhaps a better method than was used here,

had we arrived at the market value of all the outstanding stock by using the market price in order to get the weighted average of these price earnings ratios. I don't know what the result would be. I repeat, I don't think that you can use averages with such a small sample to any advantage in a case of this kind. You have to study the individual companies.

You ask why I put the averages in here. It was put in by one of my men who prepared this schedule. If I had been preparing it originally I think I would have left it out. I think it is far more important in this schedule to consider the rating of these securities, all of them rated rather low, with no A securities, no B, Baa, Aa or Aaa.

If in using the earnings for 1939 instead of the earnings for 1938, in arriving at the price-earnings ratios, based on prices in September, 1939, and in using the market value of the stock instead of the book or stated value of the stock to obtain the weighted average, the result turned out to be 10.31 instead of 7.33, it makes a considerable difference in the average presented in this exhibit, and it would make a difference in the price earnings ratio. As I told you before, we cannot get away from the statement that I made in my direct testimony. There is a scarcity of reliable information. The cream of the stocks of the pipeline companies is not shown in the schedule. It is a pretty poor schedule, as a matter of fact, to use for rate of return, but it is the best we could get. The difficulty is that the stocks are held by holding companies. I wouldn't say that they are not offering them for sale to the public because the public is afraid of them. I don't know. Public financing is resorted to in the matter of equity capital in the electric business but not in the gas industry at the present time. It and the gas industry both are in the same category at the present time. There is very little equity money being issued here. I think one of the reasons why holding companies are holding on to the securities is that a good many of them are paying handsome dividends; they are good investments. If you go back to the 20's, I don't think the pipeline companies were in demand or the securities of the pipeline companies were in demand, but nevertheless we have a different picture today. We see one thing which is somewhat unusual.

We see a lot of bank loans, running for several years,
1651 to natural gas companies. Ordinarily you do not find it to that extent in the case of electric utilities. Banks apparently think they are safe loans. The Northern Nat-

ural recently procured a six million dollar bank loan. It is a rather outstanding feature of the natural gas industry, which is one of the unusual financial features, as a matter of fact, in the industry. I don't think you can go back to the time of 1926, when you indicated pipelines were rather in their infancy, and make comparisons with the present time. In my direct testimony I mentioned the fact that if you excluded the South Penn Oil Company the figures of 7.33 became 9.14. I said several times recently this afternoon that I don't think any average should be used in any event. I have also said that the best common stocks of the industry were not represented herein Schedule 5-F.

Schedule 6 has to do with bonds that have been issued since January 1, 1935, through September 30, 1939. It deals with yield to the public and the net cost to the company as of the time the original issues were sold. The yield to the public is absolutely the best market appraisal that you can get at the time sold. This exhibit shows the yield to the public at the time of issue, and that as of the latest date available. At the time I prepared this exhibit I did not have all of the proforma earnings that were used in the prospectus prepared in connection with the issues because a great many of these issues were sold privately. As to some of the others, undoubtedly we did have information from the Securities and Exchange Commission. It is a matter of concern and importance, of course, to the investor who purchased these issues to have the information of proforma coverage, that is, earnings times interest, and coverage on all fixed charges. You ask if it would be helpful if it were added to this exhibit. It would be additional information, but this exhibit was put in for the purpose of showing some trend back to 1935, showing the facts as to financing and as to yields. It did not occur to me that anyone would want the interest coverage at the time of issue back in 1935, 1936 and so forth. I don't think that would be helpful even in examining the trend or as explaining some of the factors that enter into the trend. Come to think of it I don't think it would be of any benefit whatsoever. I think it would be just surplusage. Yes, I think the price that was paid by the investor at the time he bought the security was influenced by that. I know it was, but at the time of the sale of these securities the coverage in 1935 is not so important as what the yield was on those securities back in that time. That is the important thing. I tried to show in the other schedule information as to coverage. You ask that if it be

assumed that in 1935 a security was sold on a yield of 4 per cent, that the coverage shown by the information contained in the prospectus of earnings was three times the interest on the issue, and if in 1939 it develops that the yield was 3.8 but at that time the proforma coverage was 7, whether you would have to take into account the difference in the coverage in appraising the trend. My answer is no. That is, Schedule 6 shows the yields by ratings. Schedule 5-A shows the yields by ratings also. The biggest factor between 1935 and 1939 is the money market, the change in economic conditions, which are reflected in the yields themselves. That is what I think is the big factor. Certain coverage had something to do with it. It is not as influential in the trend as the other factors which I mentioned. The rating is the important thing in making comparisons. For instance, going back to Exhibit 185, we show Moody's Bond Yield Statistics. Bonds are classified according to ratings. Those statistics are used tremendously, and yet we don't have any information as to coverage. We find information as to ratings. That is about the only way we can tract these things through a period of years.

1652 I don't know when Moody's rated the bonds of Southern California Gas Company. It is not likely that they rate them before they are issued. In fact Moody does not rate them before they are issued. While an investor did not have the benefit of Moody's ratings at the time he bought these securities, he may have had a pretty good knowledge and information about it. Our office can tell pretty well what a rating will be before the security is even issued. You ask if the investor would concern himself with how Moody was going to rate the bonds rather than about the coverage. You bet your life he would, because that affects the price considerably. If he thought these bonds were going to be rated Aa by Moody, he would not begin to pay as much as if he thought they were going to be rated Aaa.

Here is a bond sold in July 1936 with a yield of 4.18 and another bond with the same rating sold about 8 months later with a yield of 4.23. You ask what kind of a trend that indicates. It shows a big difference in the time. 1936 was a very fine bond market. The bond market went off in 1937. Of course, the coverage had a great deal to do with the rating; and the coverage is always influential. I am speaking of the purpose of this exhibit. One of the significant purposes of this exhibit is that it shows the yield at

the time of issue. By going to Schedule 5-A you can see the yield today. We find a lot of securities shown on this page were refunded, during the period covered by the schedule, at reduced prices, and in some cases at a greatly reduced yield. The coverage enters substantially into the rating because the rating considers, among other things, the security of the principal, the security of the interest; and coverage is one of the best indications of security of principal and interest.

That is the reason that that factor is considered by Moody and those who rate bonds as one of the important things which investors want to know about. I have said many times in my testimony this afternoon that coverage is a very important factor, particularly up to a certain percentage, up to about four times. Beyond that the effect of it diminishes very rapidly, and in some cases it is almost imperceptible. I don't think it is important as far as this case is concerned. You ask whether I think it would be helpful in determining the trend of bond yields over the four years covered by this schedule, either upward or downward or otherwise, if we had the proforma coverage, which I have said investors probably considered at the time they bought those bonds. As I understand your question, I don't think the coverage at the time these issues were made would add anything to the case. Yes, the proforma coverage had something to do with the price that was paid.

We show here the net cost to company; and in the case of the Southern California Gas Company there is a difference of .2 per cent in yield to the investor and cost to the company. In the case of the Arkansas-Louisiana Company there is a difference between yield of 4.18 and a cost of 4.62, or a difference of .44 per cent. In the case of the Panhandle Eastern bonds the yield was 4.23 and the cost 4.46, a difference of .23. In the case of Oklahoma Natural the difference was .35. I don't have the cost figures of the next Oklahoma Natural issue. We could not get them. We looked for them, but we could not get the cost to the company. In the case of the Southern Natural, the yield is 4.50, the cost 4.85, a difference of .35, and in the case of El Paso Natural the difference is .42. In the case of
1653 Northern Oklahoma Gas Company the difference is .85. I don't think this cost to company, as that term is used here, reflects all of the cost of that money to the company, as a matter of fact. We followed here the usual method of giving the maturity. The sinking fund provi-

sions sometimes change the result. The issues in the great majority of cases during that four-year period have been refunding transactions. There is often a premium to be paid to the holder of the retired bond in order to get that bond, but that does not affect the cost of this new money. That is the cost of the old money. That should not be considered in the cost of the present money. If he is to get the benefit of the reduced rate of interest he has to pay the premium to do so. He pays it because he wants to terminate the old contract, just because he has old bonds outstanding and wants to issue new bonds and bring the old ones in. It is not a part of the cost of the new money, it is a part of the cost of the old that he has to pay for terminating that contract. He has to pay that cost where he wants to terminate the old contract and get the new money, whereas, if he did not have anything like that, the new money would not cost any more.

There is duplicate interest for a period of time, that is, from the time the new issue commences to bear interest until the old issue can be retired. I would not consider that a cost of new money either, because that does not affect what the investor would pay for the new bond. The fact that the company has to pay duplicate interest does not at all affect the investor's attitude toward the new bonds. That is what the company has to pay to get rid of the old contract. You ask if that is not actually a cost to the company. I look upon that more in the sense of a penalty that the company pays to terminate the old contract. I will agree with you that the set of figures on net cost to the company shown here does not include all of the cost. I will say that with good bonds issued today that the added cost of floating securities is less than it was back in 1936. I think this is due chiefly to the activity of the Securities and Exchange Commission. I think that four-tenths of one per cent would cover both the cost of printing and legal fees, and all those expenses, as well as the differential due to some of the sinking fund provisions. I would say that four-tenths of one per cent would be ample.

Now, in the case of the securities of the Northern Natural Gas Company, that bond sold, with practically no sinking fund provisions, at 3.25 yield, which is not very far from the cost. The cost would be slightly above that, but not very much. In that case four-tenths of one per cent would be exorbitant, but speaking generally of the sale of

securities in the market with those usual sinking fund provisions, requiring early maturities, I would say that four-tenths of one per cent would certainly be adequate. I think the case of Oklahoma Gas, which it appears ran to .85 above the yield, was some time ago, in 1936. It would make a difference. The cost is less today than it was a few years ago. You know, the Securities and Exchange Commission and the Federal Power Commission, and other Federal agencies which have supervision of these matters, have been scrutinizing most carefully the cost of floating securities, scrutinizing the fees which have to be paid, so the cost has trended downward during the last few years. You ask whether these hearings over in Washington, the preparation of testimony and going over there to have it presented at hearings, runs the cost down. Considering all of those things, two-tenths of one per cent is what you might say is the cost of floating good bonds today, and that is floating them by underwriting, and so forth. Of course, in some instances, such as up in Massachusetts, where securities are sold by public bid, pursuant to orders of the Commission, there frequently the costs are cut down even below one-tenth of one per cent.

1654 Passing on to Schedule 7, we have some preferred stock transactions during the same period of four years which are set forth here. There are two transactions; I am sure the second is a refunding transaction. I am not sure about the first one. One was issued in 1936 and one in 1939. The 1936 issue was called for redemption on October 7, 1939. The funds for the purpose were obtained from the sale of $5.50 prior stock, according to the note on the schedule. You ask what I gather from the circumstance that in four years, January 1, 1935 to Sept. 30, 1939, only one gas company brought out an issue of preferred stock, and that at least one of the two issues, if not both of them, were refunding transactions. I know that there is not a great deal of preferred stock outstanding in the hands of the public in the first case. As a matter of fact, that is about my only knowledge of the subject. I would not say that preferred stock really has no place in the financing of natural gas pipeline companies considering the way investors regard the amortization feature in connection with bonds. It is true some authorities claim preferred stocks have no place in any picture of financing. I would not go that far. There are some who argue that

certain sections of the Securities and Exchange Holding Company Act prohibit preferred stocks, because, they claim, the company shall have but one class of stock. There are many arguments about that question. I am still pursuing the middle of the road on that proposition. I think it has a place and can be used. Even if those in the business do not use it, they can use it to a reasonable extent, and it is being used somewhat. I don't say that they should use it. I say it would be perfectly logical if the companies involved in this proceeding should issue a reasonable amount of preferred stock at a reasonable cost. It would not be safe to assume that defendants or any other pipeline company would do it in the light of what they have been doing during the years, because of the inter-company ownership of securities.

We haven't any common stock transactions, new issues of common stock, during that four-year period. You ask whether I would assume that common stock could be issued and sold on the market at a price earnings ratio proforma bearing the same relation to the cost of raising such capital that I have said the cost of capital raised through bonds has to the yield to the investors on bonds, namely, four-tenths of one per cent. I would say the cost of floating equity securities would considerably exceed the cost of floating mortgage bonds. You ask what would be the relation in the case of a company who has securities on the market, such as those shown in Schedule 5-F, between the price earnings ratio and the cost of money obtained through the flotation of equity issues. You are now getting to the point where we have to consider each individual company. You can't deal with generalities because the cost fluctuates considerably among various companies. Just considering it on the position of companies we have here, or that we find throughout the industry here, which I term a artificial condition, I repeat again that we do not have the abundance of information on natural gas companies that we have on other utility enterprises. I would like to answer your question, but I have to have a pretty good basis of assumption on which to give an intelligent answer.

You ask what per cent of the total capitalization of the natural gas pipeline industry as indicated by these 29 companies that we have left in from Schedule 5, is represented by first mortgage bonds. Schedule 5 shows on page 6 that the total bonds, debentures, and notes of the com-

panies we have under consideration, outstanding, are
1655 $418,882,597 out of a total capital structure of $1,038,-
250,901, or roughly, 40 per cent. Now, when we come to individual cases you will find a tremendous variation. The variation is enormous. I have studied the patterns a great deal. Just to pick one at random, the El Paso Natural Gas Company; total bonds and notes, $9,000,000 out of a total capital structure of $12,000,000. That company's securities are held by the public and by institutions. It is a good one to take. Three-quarters of the capital structure are in bonds and notes. That appears at the bottom of page 1 of Schedule 5. Yes, there is a premium of $3,486,000 shown there. If you add that it becomes around $16,000,000. Still, there is more than 50 per cent outstanding in debt securities. The Cities Service Company shows $43,000,000 of debt securities out of a total of $73,000,000. Let us take any one you want. My point is that they vary all over the lot; you can't say that there is a representative average. The average is about 40 per cent. I am willing to make an assumption of 40 per cent of debt securities. I think that is reasonable. That 40 per cent includes bonds, debentures, notes, and so on. The bond yields I have presented as a guide and to which I have referred had to do with first mortgage bonds, generally. You ask if they do not constitute more than 20 per cent of the capitalization. They do in the case of the Cities Service. So many of these securities are held by affiliates I don't think I can answer it by companies. I would rather give my opinion evidence that I think a good sound pipeline company could issue bonds up to the extent of 40 per cent. I would like to emphasize in that connection one point which I haven't mentioned yet, but which I think is very important in connection with the soundness of securities, and that is that adequate depreciation and depletion expense must be allowed and taken by the companies in its expenses, because that goes to the safety of the investment.

You ask what percentage of first mortgage bonds do I find in these figures which I have presented in evidence. My statement is that it varies considerably. You take the Arkansas-Louisiana Gas Company and also the Canadian River Gas Company and you will find right there there is great variation. I do not show the yield on Canadian River Bonds. The stockholders own those bonds. I have no doubt but that a sound pipeline company could issue 40 per cent bonds, and would have over four times the interest

coverage, and I think that is an important thing. I think that a good pipeline company could issue bonds at the very maximum of 3.75 per cent cost—a good pipeline such as we have under consideration here. I mean 3.75 per cent cost to the company. From Exhibits 186 and 185 it can easily be shown that that would give a yield of 3.5 per cent, which I think is high. I have no doubt in the world that it could be done, and that would give interest coverage of 4.68 times, which certainly would be adequate. You ask what is the earning that I am using in order to get at that ratio of 4.68. The earnings would have to be somewhere between 6.2 and 6.5 per cent. I am not necessarily assuming a rate of return of 6.2 to 6.5 in order to get that coverage, but I say the company could easily finance under that price, possibly considerably less, but not any more. You are correct in that the earnings are to be fixed by the Federal Power Commission, assuming that it has jurisdiction to fix the rate of return. Certainly a prospective investor would take due notice of the pending proceedings. There is no question about that at all. You can reason by analogy, when you come to the interest coverage, if the earnings are sufficient to earn the interest coverage four times, I think, you could easily issue bonds up to 40 per cent. You ask on what basis I think this 6.2 per cent would have
1656 to be applied in order to get four times coverage. I would say that your bonds would be 3.75 on 40 per cent bonds. Your preferred stock, 20 per cent, yield to the public of 5.75 plus .35 for cost of issuing, which is undoubtedly high, but it is certainly a fair figure, and the price earnings ratio of 8 per cent on common stock plus a ten per cent cost of floating the stock, which is certainly ample. Now, I have been very liberal in those figures. I have given the outside figures.

(EXHIBITS 189 and 190 were offered and received in evidence without objection.)

1657 E. D. OSTRANDER, a witness for complainant called for further examination, testified:

(December 1, 1939.)

Direct Examination Continued by Mr. Booth.

There are a few things I think perhaps should be cleared up at this time. At page 7784 Mr. Slaff asked whether Standard Statistics Company published the list of fifteen bonds used in the average of yields on municipal bonds. I find that at page B-114 of Volume 3, Statistical Section, of Standard Trade and Securities Service, a list of bonds formerly used in the index is presented. That page to which I made reference is in a publication or a section of Standard Trade and Securities Service dated in 1936. In 1937 the average of yields on municipal bonds was revised on the basis of a new list and it was worked back to 1934 on the basis of a new list. I wrote Standard Statistics Company and they have sent me the present list. If you want a copy of that in the record I can hand it to the reporter and have it copied in if you want it.

I might add I believe there was some question as to whether that was a weighted or simple arithmetic average. I am informed it is a simple average.

At page 7785 the Examiner asked me how the yields on government bonds as shown at page 5 of Exhibit No. 180 were prepared. At that time I believe I said it was based upon bonds not due or callable within eight years. I find in a recent revision that was given in the December, 1938, Monthly Bulletin of the Board of Governors of the Federal Reserve System that they are now using U. S. Treasury bonds not due or callable within twelve years and that is true back to 1926, but prior to 1926 it is still the eight-year basis.

I talked to one of the men in the research department of the Chicago Federal Reserve, and he informs me that this yield of U. S. Treasury bonds is a weighted yield. That is all the information I have on that point. I have nothing further on that particular point. With respect to the figures which I show on page 5 of Exhibit 180 I observe that the 1932 figure for yields on U. S. government bonds should be 3.68 instead of 3.66, as shown there.

If I recall correctly I was also asked something about

how the bond yields shown on page 8 of Exhibit No. 180 were prepared. I made some discussion of that at the time. That refers to Standard Statistics Company's bond yields by class of rating and by industrial groupings. My information from Standard Statistics Company is that it is a simple unweighted average, not weighted. There are some other comments there. I don't know whether you want to have those in the record or not. You can put the letter in too. It is quite agreeable with me. I would like to indicate I wrote two letters to Standard Statistics Company, one about the municipal bonds and one about the corporate bonds. In this letter, which I understand is to be copied into the transcript, the first two paragraphs of the letter refer to the municipal bond yield information and the third paragraph refers to the corporate bond yield shown on page 8 of Exhibit 180; just so there will be no misunderstanding.

1658 "Standard Statistics Company, Inc.
345 Hudson Street, New York.

"November 17, 1939.

"Mr. E. D. Ostrander, Supervisor,
Rates and Research Section,
Illinois Commerce Commission,
160 North LaSalle Street,
Chicago, Ill.

Dear Sir:

"Enclosed is the list of municipal bonds used in our index. This list was revised in 1937 and extended back to 1934. The record of this revision may be found on pages B172, B179, B184 of the Volume 3, Statistical Section of Trade and Securities.

"The yield is a simple, unweighted, arithmetic average. Since January, 1929, the monthly average is obtained from the four or five weekly observations by using the simple arithmetic average.

"Our index of bond yields by class of rating is based upon the yield to maturity of a representative list of bonds in each group. Bonds having any extraordinary yield, thus called bonds, short term maturities, bonds, selling above call prices, are excluded. A simple un-

weighted average is obtained from the resulting representative list.

"Trusting the enclosed information will prove useful to you, we remain

"Yours very truly,
Richard Doyle,
Economics Division."

"List of Municipal Bonds

1939.

Baltimore	4s	1958
Boston	4s	1957
Cincinnati	4½s	1955
Dallas	4½s	1957
Denver	4½s	1956
Los Angeles	4½s	1957
Memphis	4½s	1956
Newark	4½s	1959
New York	4½s	1981
Philadelphia	4s	1966
Pittsburg	4½s	1950
Providence	4s	1960
Richmond	4½s	1964
St. Louis	4s	1950
San Francisco	4½s	1960"

1659 Now, at page 7827 I indicated that the rate of turnover of bank deposits should also be considered as well as the mere volume of bank deposits, but on checking over the transcript I feel perhaps I did not tie the two things together very well.

To state it very briefly, the slower the rate of turnover of deposits the greater the idleness of the funds, or the greater the amount of funds the bank might have available for reinvestment. That is particularly true, as any given bank, any individual bank whose deposits are turning over very rapidly would probably keep itself in better position than the bank whose deposits were turning over very slowly.

There is one other thing, at page 7836, beginning at line 12, I said:

"When the member banks acquire U. S. securities, no immediate expansion in deposits and reserves results unless the member banks borrow in order to buy securities."

That statement is not correct. I don't know how that got in there. I have no doubt I said it but I want to make some correction in it.

When member banks buy U. S. government bonds it doesn't increase the reserves. It may affect the division of total reserves as between required and excess reserves, but the total reserves are not affected. When banks buy U. S. government bonds it does affect the volume of deposits, contrary to what I said earlier here. When the banks use their own funds to buy government bonds it is the same thing as extending deposit credit to the government, if they are buying new issues, the government in turn will spend that money and it becomes deposits somewhere else in the banking system, so ultimately it does become deposits, an increase in deposits. I wanted to make that clear. Of course, that same inaccuracy is indicated along about lines 19 and 20 on page 7836.

There was one other matter. At the time the direct testimony was given Mr. Morgan asked me some questions about this money market testimony. After thinking it over I got the impression he was asking me if this represented a rehash from something else. I answered at the time that I believed everything I had put in and said it could probably be found in the reports of the Board of Governors of the Federal Reserve System. I am referring to my statement shown in the record at about page 7838 at which time Mr. Morgan asked me if the affirmative statements that I had been making about Exhibit 183 were contained in the sources and merely abstracted or paraphrased by me, or whether they were my own interpretation of what the figures taken from the authorities show, to which I answered "I would say partly both." To avoid any indication I was not being completely frank I want to say testimony very similar to this and an exhibit almost identical to this were put in the Peoples Gas Light and Coke Company case before the Illinois Commerce Commission by another person who at that time was a member of my staff, he, another member of my staff and myself working up the material. For the purposes of the present case I largely brought the statistical material down to date, although I did attempt to shorten it in some cases a little bit.

I believe that is all I have at this time except I handed to Mr. Booth a copy of the corrections of a more routine nature.

1660 *Cross-Examination by Mr. Morgan.*

I left residence at the University about November, 1929. I had not finished my degree at that time; that is, I was lacking a thesis. I continued on that and finished it up in 1931 and received a degree in 1931. I went directly from the university as a student to the Investment Research Corporation of America at Detroit. You ask what was the scope of my duties while I was with Dr. Edie over there at the Investment Research Corporation of America. I can best explain that by indicating briefly the nature of the organization. We had a group of men there that were called industry men. It was their duty to study industries generally. We had a group of men we called company men and they devoted their time primarily to specific companies within an industry and then, of course, we had the economics division, with which I was associated.

Our duties in the economic division were to collect and prepare the information on economic conditions, prepare forecasts of economic conditions in general, and in more specific lines where possible, for use by these other men. That is, they would predicate their opinion somewhat upon our opinion as to the general outlook. Obviously you can see that the two are related.

Now, getting down into more detailed work, I do not recall very specifically all the things I did, of course, but I can enumerate some of them. I did quite a bit of work with industry profits and with the studying of price earnings ratio. In fact, we constructed an index of industry price earnings ratios extending back to 1900. I also worked with other economic series in attempting to analyze them and project them by statistical means, such as the curves of automobile production and registration, and we also kept some figures in series on the condition of the Federal Reserve System, including both the Federal Reserve Banks themselves and the member banks.

We had two men, I believe, who were devoting their attention primarily to public utilities. I worked with them as well as the other men in the organization in discussing various aspects of our research. My work was of a statistical research character, I would say.

When I went with Mr. McKinsey my work was primarily public accounting. I am not a certified public ac-

countant. I have never engaged in the private practice of accounting. I have kept books, but I have not been an accountant in the sense you have indicated. When I was with Emery, Peck & Rockwood, of Chicago, my work was more in the nature of investment work. I mean I had more call upon accounting knowledge there than statistical knowledge. We dealt with financial statements more than economic statistics.

Of the ten years since I left the University I have spent six of those years with the Illinois Commerce Commission. You ask what kind of position I first had with the Illinois Commerce Commission. I went in there as a member of the staff of Dr. Raver, Dr. Paul J. Raver, who was head of the research division there. I think I might have been referred to or was referred to as a financial analyst, a title that I hold no particular brief for. Thereafter, beginning, I believe, about the first of July, 1935, I was designated as assistant supervisor of the section, and

those changes in title relate partly to budget prob-
1661 lems over there. I mean, when the new group was organized there was no direct provision in the budget for such a section and such a title, you see, and it was not until 1935 that that was organized along those lines. And then on March 1, 1937, I was made supervisor of the section at the time that Dr. Raver was made executive officer of the Commission.

My title is now Supervisor of the Section of Rates and Research. I work with Mr. Kleinman many times, but not under his direction particularly. I am not a member of his staff. He is in the Division of Accounts and Finance, I believe he calls it.

I have devoted a great deal of my time to statistical research in various fields. I have studied the statistics of the revenues of the Illinois public utilities. I have made rate analyses and comparisons and studies in relation to accounting and statistical procedure, and reports of utilities. I believe the monthly reports of the utilities to the Illinois Commerce Commission come to my division. The annual reports come to Mr. Kleinman's division, but we make a great deal of use of them. Generally speaking, I am familiar with the nature and scope of those reports. I often have occasion to refer to them and to use them in my statistical studies, particularly those of the electric and gas companies. When I say rate analyses, I am referring primarily to analysis of the effect of proposed changes or

revisions in rates in terms of revenue to the company, or looking at it from the other end, in terms of bills to consumers. Part of it means the taking of a rate schedule and stating it in terms of dollars. We sometimes apply that, of course, to what we call consumer analyses to measure the effect in revenue. By rate comparisons I mean simply a comparison of charges under one rate as against charges under another. Oh, yes, I think that has something to do with comparing the rates of one concern with the rates of another concern. We resort to that sort of thing in connection with our work on rate comparisons. We do that just to get the level of rates in different localities. I think that is important as a part of rate making studies, to know what rates are being charged by others.

I have never compared the city gate rates of the natural gas pipeline companies that deliver gas or sell gas in the State of Illinois with the rates of other pipelines. I have not gone so far as to compare the rates of these pipelines which sell gas at the city gate in the State of Illinois with the rates of other pipelines which receive gas from the same source, namely, the Panhandle field in Texas. My reason for not doing that is not that I do not think it is important. I think it would be interesting and worth while information to have. I just simply have never done it. You ask whether I think that would be worth while information to have in connection with a rate study of any particular pipeline such as defendants. I don't think it would be of great value. I mean the rates of this company are a problem somewhat separate from the rates of other companies. The only purpose or use that might be made of such information is just a broad background or basis of forming judgments. I said such a comparison was important from the point of view of knowing what the level of rates is in different communities. It is a matter of information. I do not think it is as important from the view of public information, of course. It is important for the Illinois Commerce Commission in the sense that they might look at one and if there was a vast difference inquire as to what reasons there might be in justification for that.

1662 I mean, you can only use those comparisons as the broadest sort of starting point. Whether or not I think it important or proper is not the reason why I did not do it or would do it. I mean I just did not do it, that is all. I never gave it much thought as far as that goes.

The amount of work I can do is distinctly limited, and this case has already taken up too much of my time as it is.

For my own information I would like to know whether Chicago is buying gas cheaper or higher than any other city to which gas from the Panhandle field is being sold. I do not know whether or not the price paid by the Chicago area utilities for gas coming from the Panhandle field is lower than the price paid by utilities in other localities for gas coming from the same field.

You ask whether or not if, it should turn out from further testimony to be offered in this case that the price of gas sold by the Natural Gas Pipeline Company to its distributors at wholesale is the lowest price at which gas produced in that Panhandle field is sold, I think it would be an important factor to consider in connection with arriving at a proper rate at which defendants should sell their natural gas. I think I can answer that along the same lines that I have already answered some of your questions. If I were setting about to form an opinion as to the rates of the company, if I had information as to these other rates to which you have referred, and if it showed that the other rates were much different from the Chicago rates, that would be of interest to me as a starting point to ask why those differentials are there—whether they are based upon justifiable reasons, or are something that is due to some other factor that is involved there; but in a proceeding of this kind it seems to me that you cannot try the rates of all the other companies that are dealing in natural gas.

You ask me to state just what I start out doing when I enter upon a research in connection with the problem of a fair rate of return. I start to collect information on various subjects that have been indicated to be elements to which some consideration should be given in forming a judgment as to a fair rate of return. You ask what elements I think should be given consideration.

I do not know whether I can recall a complete list, or I do not know whether I have arrived in my own thoughts on the matter at a complete list. One factor that has been mentioned by the courts is risk. In connection with that there are a number of subsidiary factors or points to be considered as matters upon which judgment can be formed as to the amount of risk. For example, the territory served. The nature of the product might have some bearing upon the risk. The nature of the operation. There are probably a number of other things that I do not recall offhand.

Courts, I believe, have mentioned cost of money. Financial history of the company. General level of interest rates. Economic conditions. There are probably others, but I just do not recall them now.

I have devoted my time to other phases or other elements and have not given consideration to the element of risk in my preparation to testify in this case. My testimony has no relation to risk particularly that I can see in connection with rate of return. Personally, I think risks should be considered. You ask whether I recognize that it is a fact that the present interest rates, present volume of idle money, or money not invested in industrial enterprises, the present volume of investments in the very highest order of securities, such as government bonds, short-term bank loans and corporate bonds of the highest ratings, indicate
1663 that the investing public is more concerned with safety and security of investment than return on investment. I do not believe I could answer that question categorically. I mean, there are lots of factors to consider as to why this thing is where it is. It is not a matter solely of risk; it is a matter of what is available. What is available is one of the factors. You ask whether I agree that there is a tendency to demand more compensation for risk at this time than in past years, relatively speaking. Frankly, I have not made studies adequate to enable me to answer that question.

This Aaa bond is called A-1 Plus by Standard. Moody's B bond is called B in Standard's, if I recall correctly. I have not studied the spreads between the yields on those two classes of securities at the present time as compared with recent years. I have not studied the spreads between the yields on A-1 Plus bonds and any of the other lower grade bonds. I have not made a check to determine whether there is a wider spread between the yield on the A-1 Plus bonds at the present time as compared with the yield on those lower classes of bonds, beginning with B, than a few years ago; but I would judge that it is probably a fact. That is attributable in part only, I think, to the fact that as you leave the A-1 Plus bonds and go in the direction of B bonds you are getting into risk considerations and risk elements. Without making a more comprehensive study of it, I hesitate to say that there is a marked tendeney to avoid risk or to demand higher relative rates of return for risk as compared with rates of return on safe investments at this time than there was a few years ago. I mean there

are a number of factors besides risk. Risk is a relative thing. The compensation demanded for risk may vary because of the degree of risk varies, and so forth. When I put this material together I do not think I had in mind the attitude of the investor toward the element of risk. I think I summarized somewhere this exhibit on interest rates to show it was merely intended to show the trend of interest rates of various kinds. I am not appraising this data. Obviously I have not formed a judgment as to the proper rate of return and therefore there has been no occasion to interpret it. I was asked to put in some information on interest rates. I do not know how else you can measure interest rates. These data are there for whatever weight and consideration other people want to give to them.

You ask whether I expected Mr. Kleinman to reach a judgment from my evidence rather than to reach that judgment myself. I have not even read Mr. Kleinman's testimony except that I am familiar with a brief section with regard to some risk factors. I do not know what rate of return he testified to. I don't know what use Mr. Kleinman made of my material or if he made any use at all of it. There might have been a tacit understanding that Mr. Kleinman would consider interest rates as a factor; and he might look at what I did or was going to do; but I don't actually recall that we had any formal understanding about the matter at all. The only thing I knew Mr. Kleinman was to do was to have some material in connection with risks of some sort or another on the general subject of rate of return testimony. That is all in the world I knew about it, not that it makes any difference; but I did not work with Mr. Kleinman before he gave his testimony.

I suppose Mr. Booth distributed the work that was to be done in presenting this testimony on rate of return as between Mr. Kleinman and myself. In part, I prepared what Mr. Booth told me to prepare. I mean, I testified to 1664 different things here. I can't recall that directly, because part of this work was done last spring with the thought that I would go on the witness stand right at the first. As I recall, Mr. Booth or Mr. Olmsted asked me to prepare some material on interest rates and some material on financing by natural gas companies, and submit information on money market factors. The other thing to which I testified was something I developed and suggested I would like to testify to; that is, the matter of those mathe-

matics and this amortization problem. I suggested that to Mr. Booth.

I was told Mr. Kleinman would do something on rate of return. I did not know how he would go about it. I assumed that he would express a judgment as to what the rate of return ought to be; but I did not know actually that he would. I think I knew since that time by his testimony; but I didn't know actually what per cent he would actually name, if he named one. I did not know that. I don't know whether I was asked to determine affirmatively what the proper rate of return was. I don't think it makes any difference.

Last spring I believe I prepared some summary data from my studies on public utility financing, a copy of which I think went to Mr. Hedrick, with the thought that that might be included, but I decided later to withdraw it. The material I presented, with the exception of Exhibit 182, was prepared at the general direction of Mr. Booth, who told me to prepare something on interest rates. I think that is substantially accurate. Sometimes it is hard to draw a line when you are in a conference and discussion as to where the originating source was. I mean, we are not too formal over there on these things.

My testimony on cost of money was used in former rate cases. You ask what kind of capital money was involved in our studies on rate of return over at the Illinois Commerce Commission. I think the three principal types were bonds, preferred stock and common stock. Of course when we come to common stock we have a somewhat different problem than we have when we have the others. I do not have anything to do with the approval of securities up there. You ask how many financing issues have been referred to the Illinois Commission in the past four years. There have been a considerable number of them. I am only familiar in a general way with it, because it is usually listed in the Commission's annual report, for which I am responsible. As to volume, they have had largely to do with bond issues. In terms of number of issues I think that is true also. There has been stock issued for various purposes. I don't recall all the issues. I cannot tell you whether any new issue of common stock for the purpose of raising capital has been submitted to the Illinois Commerce Commission for approval during the past four years. Had such an application been submitted I would be apt to know some-

thing about it in a general way. Just how precise my knowledge might be I cannot say at this time. You ask whether or not I can ascertain whether there have been any issues of common stock referred to the Illinois Commerce Commission for approval for the purpose of raising capital in the last four years, 1936 to 1939, inclusive. That is going to be a tremendous job, of course. You suggest that I ask the secretary. He won't know. In order to answer your question I would have to make a detailed study involving weeks of work on my part.

You ask whether I think in connection with the overall financing of a gas company that it is important to
1665 know whether or not there have been any applications for the approval of issues of equity securities for the purpose of raising new capital. I think I have a general idea, if that is what you want. I am willing to say I am reasonably confident that the amount of new capital issues involved during this period has been very small, if that is satisfactory. I am not granting anything now about what that might mean or what the significance of that might be. Those are just the bare bones of the facts; whatever interpretation may be put on them is something else. I think there have been some, particularly by the smaller companies.

I was going to say that these compilations of the Commercial and Financial Chronicle on utility financing, new utility flotations, are split into refunding and new capital. But their classification is very bad from an economic point of view. It is reasonably sound from a corporate point of view, subject to numerous errors. But unfortunately, those statistics have gained wide circulation, and people look at them as being an authoritative index on the volume of new capital. But analyses have been made to show that they are pretty bad from an economic point of view. That is the point I am bringing out here.

I testified in a number of cases, as I stated on direct, with respect to such factors as cost of money. I think I have mentioned in my direct testimony all the cases in which I have testified on the cost of money. In every case in which I have testified, with one exception, I have testified as a witness on behalf of the Illinois Commerce Commission. In that one exception I testified as a witness on behalf of the City of Cleveland. I don't know how the case got to

the Commission. The city had passed an ordinance and the company appealed to the Commission.

You ask whether I remember what my studies in connection with my work with the Journal of Land and Public Utility Economics revealed as to the kind of financing that has been going on in the past four years as between refunding and new money transactions. That study shows obviously that a very large portion of the total represents refunding financing. I want to also say that up until the last few quarters of my studies I predicated my figures pretty largely upon the Commercial and Financial Chronicle's compilations. After I became aware of how bad those compilations were from the point of view of new capital, I abandoned the practice of showing that index number, in which I showed the index of both new and refunding and total. I avoided that practice, and I avoided, if I recall correctly, statements of too categorical a nature as regards the volume of new capital financing versus refunding financing. I mean, I avoided being too precise about it; although I will still grant the great bulk of financing in recent years by public utilities has been of a refunding nature, for reasons which I think are apparent, but which I will not go into now. I would be inclined to think that that is true of other classes of business besides the public utilities. I haven't made the detailed studies, but I would suspect that that is true.

You ask whether or not it is more or less costly to raise additional capital by an issue of securities or to refund the existing indebtedness through the issuance of new securities. I think I know what you are trying to get at. It probably will require quite a dissertation to answer it. I recall, for example, this; quite a number of companies have brought out a number of different issues, I mean this
1666 year maybe an issue and next year an issue, and so on, several times during the past several years. Now, I recall one case specifically where there were a couple of refunding issues, a new capital issue and then a refunding issue. The new capital issue was among the lowest cost issues for that particular company. I think in order to appraise that you have to realize money market conditions change during the period, too. I mean, as of a given instance of time what difference there might be as between the volume of new capital financing versus refunding issue for a given company, what differences, if any, would

depend possibly on fortuitous factors with regard to the elements to be taken into the computation. I don't know whether I make myself clear. I am trying to be as brief as I can. You ask what would be the difference in the cost to the company raising the original capital as compared with raising the same amount of capital in a refunding issue. I think again of this one instance. I just don't believe that the cost would have been very much different at that time for that company regardless of whether it was a refunding issue or a new issue, subject to the method by which you might measure cost. I mean when you measure cost on refunding issues there are various ways you can look at it, depending upon what you are going to include in the costs.

You ask whether, to apply the question to a natural gas pipeline company, I would agree that that part of the indebtedness represented by bonds would cost more through a bond issue at the time the pipeline was about to be started than it would after it was put on a going basis, everything else being equal. That involves, of course, a lot of assumptions, but I think if I understand you correctly probably it would cost a little more for the company to get money when it starts out than it does when it has been in business a number of years. I am not going to argue that question. The significance, of course, is something else. How you would treat it, and talking about taking into consideration the amounts involved and the changes in the money market and other developments in the investment field generally, and so on, I don't know how you would appraise it. You ask what is the comparative cost as between a refunding issue for the purpose of taking up an existing indebtedness and the cost of obtaining additional money for the purpose of making extensions and expansions by the same industry and at the same time. The thing I was talking about a moment ago depends upon the statistical methodology of comparing costs and it depends on certain of these fortuitous factors, the amount of the call premium, the amount of duplicate interest, and so on. I mean as of a given point in time and as of the same company, it is conceivable that company can afford to raise new capital and could raise new capital where they could not afford to refund an issue, if I make myself clear. That is on account of the cost involved in duplicate interest in paying off the premium of the old indebtedness to get possession of the bonds and other various refunding costs which I term somewhat fortuitous.

You ask which will sell at the lower yield to the investor ordinarily, an issue of bonds solely for the purpose of taking up an existing issue of a company which has an earnings history already accumulated, or an issue to raise additional capital for the purpose of making expansions with the hope of increasing the earnings. I frankly don't know that there would be any significant difference between the two. My studies have shown over the past several years that given companies have done just that, except that the refunding issue, of course, and the new capital issues were not exactly together in point of time. There might have been a lag, an interval of time between the two; but on
1667 the basis of that I don't think there has been any distinction of significance between the yield to investors on a so-called new capital issue and a so-called refunding issue.

You ask me to assume a company with $20,000,000 of capital, with $8,000,000 of bonds, and earnings times interest on the bond issue of 5 to 1. You then ask if that earnings times interest ratio would be a very important factor from the standpoint of the investor if he were considering buying a bond issued for the purpose of refunding that indebtedness. I should say the investor certainly would look to the interest coverage as one of the factors. I would not go as far as one of the company witnesses did before the Illinois Commerce Commission in which he said that because of their refunding, because of the lower interest rate and consequent improved coverage, an investor would want the issue, which is tantamount to saying if the company is now earning its interest one time, that is, earning its interest once, and obviously if they put out issues carrying half the interest they would earn the interest twice. I would not say that that is a factor which would induce the investor to go into the refunding issue. One of the factors in which he would be interested is the earnings times interest ratio in relation to that series in which he was considering investing his money. He would be interested also in the over-all picture. There are a great many other factors, of course. You ask me to assume that $8,000,000 of bonds is to be refunded by an issue of securities and that the earnings of the company show that the earnings times interest on a new issue of securities is 5 to 1, and ask whether or not that circumstance would enter into the price which an investor would pay for the bonds. Obviously, it seems to me in-

vestors would look at the interest coverage of an issue they were about to buy as well as look at a lot of other factors. That is only one. Just how they would weight it and appraise it is something else again. There is no denying they would look at that and consider it. It would have an influence on the price. I mean the amount of interest coverage requirements so far would have an influence.

You ask me whether, in the event that same company decided to expand with a view of increasing its revenue and at the same time as this refunding operation wanted to get $4,000,000 of new money to put into additional extension and expansion of facilities with a view of increasing its earnings, that second issue of bonds, in determining the earnings times interest, would have to be weighed in connection with the interest requirements on the refunding issue. I think an investor would give consideration to the fact that it is the second mortgage, certainly. He would take into account the whole financial position of the company. He would consider there was interest ahead of his and he would look toward the over-all charges upon the same. If there were debentures after his second mortgage, even though his claim is technically senior to debentures, nevertheless the company might by virtue of the debentures get into difficulties that would be embarrassing to the second mortgage, even though he might in reorganization come out with no reduction in his principal amount. Investors look at all those things. The earnings times interest would have to be figured on a basis of the earnings times interest on both issues in that sort of situation. If the first mortgage interest is being covered by a very nice margin the effect upon an investor as regards the coverage on his second mortgage is much less than if the first mortgage interest is not already being earned by such a good margin. The weight to be given there is something different from the fact that the weight would be given. You ask that if the earnings times interest ratio on the first issue is 5 to 1, the earnings times interest ratio in relation to the second issue would necessarily be less than 5. I don't think that is necessarily so. You just can't dovetail these things together as precisely as we are trying to do here. There is a pre-
1668 sumption that the new capital being put into the business will also earn money. As a matter of fact, very frequently the financing is accomplished in this fashion. The funds used to construct the properties are advanced from

the treasury funds of the company and the treasury is replenished some little time later by the proceeds obtained from the so-called new capital issue.

As a matter of simple arithmetic, if in taking into account only the prior issue, the earnings times interest is 5, the earnings times interest would be less than 5 on the later issue. The arithmetic would be the same whether or not the second issue was tacked on to the open end of the prior issue. If the extensions were to be made with the hope that they would increase the revenues, any figures concerning the increased revenues at the time would necessarily be proforma, unless you have the situation I gave a little while ago where a new capital issue is raised for the purpose of reimbursing the treasury for capital expenditures already made. If we are doing this financing today, the earnings times interest is known because we have the earnings history right in front of us for the past year. I have already said, not taking into account certain factors that as a matter of arithmetic the earnings times interest ratio would be lower if we take in the $4,000,000 additional for the purpose of making extensions to be started as soon as we get the money. As a practical matter the company might project estimates of future earnings as a result of those extensions. The only way we could get that earnings times interest ratio back up to 5 would be to take into account some of those future earnings that are yet to be demonstrated as a fact.

You ask whether an investor would invest his money at a lower yield if the historical earnings sustained the relation of 5 to the interest than if a part of the earnings was yet to be demonstrated by extensions to be made in the future. It seems to me it is a matter of degree. I mean, I am willing to grant possibly for a short time a large addition to the funded debt would cause some decrease in the coverage ratio, but how large that would influence the investor is another matter. I have no particular objection to trying to answer the question. I think it is rather an interesting problem. There are many difficulties in trying to arrive at an answer. I am not just sure where we are. As far as I can recall I was attempting to distinguish between people giving weight to something and whether or not that would be an influencing factor. I think you have to look at these things from a reasonable point of view. If a company had a huge increase in its funded debt for the purpose

of getting a great deal of capital, and if it were the investor's opinion the probabilities of earning on that additional capital in such an amount, I mean, if such amount exceeded the reasonable requirements of the company, he would give it more consideration than he would otherwise. If, as the thing stands, he has plenty of protection, if as the thing stands before the refinancing for the new financing he has good protection, then, he is not going to be concerned about a slight change for a short period because he will have to convince himself first that the company requires this additional capital and can employ it in a profitable fashion in its business.

Questions Interposed by the Examiner.

You ask me to assume that there are two investments available for a person who has money to invest; that the companies are identical, that is one has a total capitalization of $20,000,000 and the other has a total capitalization of $20,000,000; each has an outstanding issue of bonds in the sum of $8,000,000; the only difference up to that point is he can get several bonds of the first company and he can't get any of the bonds of the second; but the second company is floating an additional issue of $4,000,000 and he can acquire several of those bonds. With respect to the first issues he knows that the earnings times interest ratio
1669 is 5 to 1. He doesn't know what the earnings times interest ratio is with respect to that of the second company after the additional issue. In the way of a price matter, as in which company he would be more inclined to invest, I just cannot make the categorical sort of answer that would on its face seem to be called for. There are so many factors that it is pretty hard to isolate one of them and say that that would be controlling. I do not think the distinction is so important as the tenor of things would seem to indicate, because there is always a thought certainly that the additional funds will earn money. There is always the question of the availability of the other issue. That is, here is a large insurance company that wants to buy a million or two or three millions of an issue, and the public cannot do that with the market conditions existing. They have to turn to new issues. Sometimes they are willing to pay a good price for them because they can get the quantity they want. I have known of bankers to so testify

in rate cases. I don't know whether that satisfies you or not.

I am willing to grant you that under the No. 2 situation, where there is new money raised, there is the possibility of a dilution in the times interest earned figure that the investor would consider, but there is a possibility of a reduction, at least for a while. I do not just like to say or to chop these things off too abruptly. You cannot be too absolute about them. They are considered, certainly; I would not deny that at all. How far they go in influencing an investor to make up his mind, I do not know, because there are so many other things.

Cross-Examination by Mr. Morgan Resumed.

You ask whether I think it is important to know whether it would influence an investor before I take those refunding rates of yields as a guide in fixing a rate of return for a company in a rate proceeding. I think some consideration should be given to that, if it is such a great possibility, and I think I have already said that that distinction, as a matter of fact, seems not to have been one that is an appreciable measure, looking at the actual facts of this period.

I have stated that the great bulk of the financing in the last several years has been of a refunding character. That refunding has been largely in bonds, debentures, and notes. They have been principally bonds or debentures of the higher rating groups, say from Baa on up. You ask as among the four classes listed by Moody where has the principal part of the financing been done. I haven't made such an analysis. I really don't know. I think there are some figures in the record on that.

(At this point counsel for defendants handed the witness a copy of Dr. Dorau's Exhibit #152.)

You have referred me to page 37 of Exhibit 152. I imagine that this correctly reflects what it purports to reflect in the way of factual information. From this exhibit I would say that the comparative volume of Aaa and Aa financing to the total is much larger during recent years than it was during the four years preceding 1929 or preceding 1930. If the A bonds be included as among the higher rated bonds, the bulk of the financing during the past four years has been in those three classes of bonds, Aaa, Aa, and A. A relatively small amount has been in

Baa and the lower ratings of bonds. You ask whether that circumstance should have any bearing on the weight that ought to be given yields in a rate of return study. I think one should examine the reasons for that and take those into account, whatever they might be. I mean the reasons for the increased relative volume should be taken into account. There might be several reasons for it. You ask whether it is reasonable to assume that the yields on
1670 the type of bonds that have been involved in these transactions would be smaller than on other types of bonds of lower ratings. I think that is a fact, that the yields are lower on the high grades than on the lower grades.

You ask that if we are examining a general curve dealing with the subject of bond yields, knowing that those transactions were largely refunding transactions and largely of the higher grades of bonds, it would be very important to take those factors into account in weighing the bond yield as an element entering into a rate of return study. I think that this shift in proportion here must be taken into account in appraising any data that purports to show the average yield on new issues. Just as I pointed out in my articles on financing, I believe you perhaps noted a number of times, both facts; that it is largely refunding financing, and largely refunding financing of the higher type securities. Those facts are pertinent to any interpretation of the average rate of yield on new financing over a period of time. I don't mean, though, that it does not have as much pertinence to bond yield averages of all types. That is something else. I mean yields on bonds such as I have shown here, and I have shown them down to the very lowest grade. You ask if we averaged the yields on the types of bonds which are involved in most of the transactions with the yields on the relatively small proportion of bonds of lower ratings and higher yields, whether we would get a true picture of the average yield on bonds. If I took the average yield on all new public utility bonds floated in 1938, and took the average yield on all public utility bonds floated in 1928, and compared those average yields, one of the reasons for the difference might be due to the difference in the composition of the material upon which the basis of average was made. I don't think there is any argument between us except as to the manner of stating the facts. I get a true picture as regards the aver-

age of what was done in one period as against another; but in comparing the things averaged, if it extends over a period of time, it becomes pertinent to go behind the statistical computation and see what was being averaged. Of course, there is no argument about that. I don't quite see your suggestion that that must be taken into account in appraising the trend of these bond yields over a period of years. I say that the change in composition must be taken into account in appraising the change in the average based upon all new capital. Now, you are going from that to bond yields on outstanding issues of all classes, and so forth. That is different. If you came to me and said, in 1938 the average yield on all new public utility bonds floated was 3 per cent; and in 1928 the average yield on all public utility bonds floated was 6 per cent; I would say, in order to explain that, of course, you have to look, among other things, at the comparability of the composition of the total as of the two dates; and the fact that it was predominantly high grade financing at one time, and less high grade at another, would be one of the factors that caused the decline.

You ask me as between bonds and preferred stocks what is the relative position of preferred stocks in the securities picture as compared with the period prior to five years ago. The volume has decreased. I would say that there has not been a great deal of preferred stock financing in the past few years. There have been some very important issues, however. You ask what is the relative percentage of the total capitalization represented by preferred stock in the new issues of securities during the past five years as compared with the period prior to the last five years. If I understand you correctly, I will say that to the best of my knowledge, without actually having gone into a very precise study of the problem, the percentage of capital stock financing to the total public utility financing during the past few years is probably less than it was prior to 1930, probably quite a bit less. I don't know the precise figures on it. I really don't know whether the preferred stock is a larger proportion of the total now than it was five years ago. I know that some preferred stocks have been refinanced, but that would not change the picture. If I recall correctly, some preferred stocks were replaced by
1671 bond issues, which would tend to increase the proportion of bonds, relatively speaking, and decrease

the proportion of preferred stocks, but beyond that I don't know. You ask if the practice of resorting to preferred stock in the issuance of securities during the past four or five years is resorted to more less extensively than prior to the past five years. I think there has been less use of preferred stock, if that is what you mean.

Common stock is what is commonly referred to as equity capital. The proper term is equity securities. There have been relatively few common stock issues. I have an idea as to the comparative cost of raising capital through common stock issues and through bonds. By and large, common stock money costs more. In so far as there is such a thing as cost of money on common stock it would be higher. If there is to be an over-all refinancing of a company's securities, the common stock would be one of the things that would have to be dealt with. If we were trying to arrive at the cost of financing on the basis of certain proportions of bonds, preferred stock and common stock respectively, as constituting what a witness has termed sound financial structure, the cost of raising the capital represented by the common stock would be one of the elements that would have to be considered. I think it would be just as important to determine the cost of raising capital by common stock for the amount represented by common stock as it would to ascertain the cost of bond issues for that proportion to be raised through the issuance of bonds. The full information concerning bond yields, after all allowances have been made for the proportion of bond transactions that have involved refunding and high-grade bonds, and for all of the other factors that enter into the weighing of the yields on bonds, does not give sufficient informtaion to arrive at the cost of the over-all financing of a given industry. A judgment would have to be formed as to the cost of the equity capital. This matter of cost of equity money or common stock money is quite a different thing from the cost of bond money, but with that observation I would say, yes, it is necessary to arrive at the cost of the equity capital. Bonds are contractual obligations in which you have definite prospects, definite promises, definite expectations, and by arithmetic you can arrive directly at a figure that we call cost. You cannot do that in the case of stocks.

You ask if it is more difficult to arrive at the cost of equity capital than it is to arrive at the cost of bond capital or a funded capital represented by first mortgage bonds. I think the point is that you cannot actually get what you

call cost of equity money. You can attempt to appraise it and arrive at a judgment along those lines as to what a reasonable cost figure it. It involves a rather extensive study over a period of time. No such figures are readily available in the same form that bond yields are available. You ask why not go the whole way and exercise judgment about the cost through the issuance of bonds then, if the cost of equity capital has to be a judgment or opinion figure. I think one has to exercise judgment as to how far one goes in putting information in. As long as information on certain things is available, I see no objection to putting it in. If other information that requires a great deal of assumption in order to arrive at it, and a great deal of work in order to obtain it, is not put in, I do not see anything particularly startling about it. I think that by and large common stock money probably has what we might term a cost that is higher than high-grade bond money. I think high-grade common stocks probably sell at a better basis than the poorer grade bonds. It is all a matter of degree. Some common stocks sell on a very good basis.

1672 I am not sure that I know of any method of appraising the relation between the bonds and stocks as regards cost. I recognize that there is a difference between the yield to the investor and the cost to the company in the event of the issuance and sale of a bond issue. From my experience on new financing in recent years, the difference between the yield at which the securities were sold to the public and the cost of money to the company on the new capital basis averaged around two-tenths of one per cent. That is what I found in these articles on financing in recent years. In individual cases it goes to four-tenths of one per cent, certainly. I was talking about the average.

We do not have common stock yields in the sense that we have bond yields. You ask what we have in connection with common stock transactions from which we can arrive at something related to bond yields. There is a dividend yield which you can study, and also an earnings per share or dividend per share. There is also what is known as price earnings ratio. By the latter term is meant the market price of the stock dividend by the earnings per share on the stock. That is the simple one. You ask what would be the spread between the price earnings ratio on stock sold in isolated transactions such as occur in stock markets, for instance, and the cost of financing through the issuance and sale of a whole issue of common stock. I am not just sure.

It seems to me you might be able to work out something if you had enough data to find the relationship betwen the price paid by the investor for common stock and the proceeds to the company. In the same way, there might be expense in the case of common stock just as well as in the case of bonds.

You ask me whether I agree with the language you are reading from "The Problem of the 'Rate of Return' In Public Utility Regulation With Special Reference to the Long Lines Department of the American Telephone & Telegraph Company," dated June 15, 1938. You read first from page 79 under the caption, "Adjustments for Expenses of Marketing Securities" the following: "In the case of both bonds and stocks it is clear that the yields at market prices do not represent the total costs that the corporation would ordinarily incur in selling new securities on the market." I have just stated that in substance, I believe. You then read, "The amounts realized by the corporation are less than the market prices by the amount of the expenses involved in issuing and selling the securities, and the percentage cost to the company is correspondingly increased over the yields at market prices. In the case of bonds, this differential is well recognized, but for common stock financing it appears that some further discussion should be devoted to this point." I might interject here on this one thing, that the amounts realized by the corporation are less than market prices because of expenses, and so on. There are once in a while some unusual exceptions to that. I believe I mentioned one this morning where a company sometimes could do better than market on a new issue because of the fact that someone might be willing to pay that premium in order to get a large amount or all of it, or something like that. I am speaking of bonds—just as an illustration.

You continue the reading, "The necessity for a margin over the earnings-price ratio on common stock seems clearly to exist, except in those situations in which a corporation could sell additional stock at the average market price. However, it seems probable that few corporations could ordinarily sell any substantial amount of new stock at the full current market price." I think I am generally in agreement, bearing in mind that the word "substantial" is used there. I might observe that when I was in the
1673 investment business we often did sell stocks at the current market. I mean, our inventory. We carried

an inventory of stocks that were quoted on the market and we sold those at the market. Not only that, but we sold them without commission. I mean to the investor. If you put the whole issue on the market at one time there would be no market for the issue to be depressed. You say if you put the whole issue on the market then you assume that there has not been any of the issue outstanding to have made the market. However, if it is assumed that for the past few weeks there have been market transactions in a given stock and then today who holds it dumps the whole issue on the market, it would certainly not bring in as much money as if sold in isolated transactions.

You now ask if I agree with the following language from the same source from which you have been reading: "Offering of a large amount of additional stock on the market will tend to depress the price, since the delicate balance between demand and supply is easily upset, and corporations rarely attempt to sell any large stock issue directly on the market, it being apparently expected that, due to the resulting depression of the market price, this method would result in more expensive financing, over-all, then if the stock were sold in other ways." You ask if that does not mean that we have to make allowances for the price-earnings ratio that is evidenced by isolated scattered market transactions in appraising the cost or arriving at the cost of financing through the issuance of equity securities. I might agree with your point as to what you have to do. I do not think this evidences that. Let us look at it a minute. This talks about putting a large additional amount of stock on the market. I presume that is talking about an organized stock exchange, an organized stock market. I assume that. I would agree with that if you attempted to go and sell a great volume of stock through brokers on the New York Stock Exchange that it would tend to depress the price of it, certainly; but it says right here that that is not the method followed. The distribution is made through other methods, through bankers and brokers who would distribute the stock, and they would do it at or very close to the market. I know that it has been done in some cases.

You ask if it is not true, as stated in the source from which you are reading, that "If the new stock is sold through underwriters, it may be assumed that some fee or commission will be charged." I think that is true. You then continue reading from the same source:

"When new stock is offered directly to present stockhold-

ers, the offering prices are customarily less than market prices, apparently on the theory that some margin must be allowed in order to assure the absorption of the stock.

"Furthermore, in determining the fair rate of return, it does not appear that this necessary 'margin' allowance can be restricted solely to additional stock to be sold in the future, if reasonable costs of new capital are to result. Potential investors, willing to buy the stock at a certain earnings-price ratio, would tend to ask higher returns, if they were to become aware that, as soon as the corporation had their money, the earnings would be reduced until such time as still more new common stock money was needed.

"The conclusion that the allowed return should include an additional allowance over and above the precise earnings-price ratio on common stocks represents a direct reflection of the market conditions apparently in contemplation by the Massachusetts Department of Public Utilities, when it remarked that:

1674 " 'In determining what amount of dividend is necessary to attract capital at such a price (that is, a price at least as high as the average amount per share paid into the company's treasury by the stockholders) regard must be had for the fluctuations likely to occur in the market price by reason of new issues being placed upon the market.'

"Certain investigators have interpreted the Massachusetts doctrine respecting return on common stock as requiring a limitation of such return to levels just sufficient to maintain average market prices close to par value or issue price, and at least one fairly recent decision apparently lends some color to this view. However, as early as 1925, that Commission clearly recognized the actualities of the situation when it remarked that a corporation's shares of stock will not sell in large quantities at par unless small quantities sell in the stock market somewhat above par." And the Commission added:

" 'Hence it follows inevitably that the company must earn such an annual dividend as will maintain the price of shares of its stock above par in the stock market. Such a dividend demanded by economic necessity is, in substance, what courts call a fair return.'

"The magnitude of this 'marginal' factor with respect to both bonds and stock has been studied by reference to the terms of actual security floatations regarding which the

data as to costs of financing could be obtained. These studies are presented in the following chapter."

"The preceding data on costs of common stock financing cover a very limited number of cases. Nevertheless, all the data on this point which could be unearthed during the time available for this study has been analyzed and it is believed that such data suggests certain definite conclusions. It appears that a strong, well-established utility, with good credit, could market reasonable amounts of new common stock, under ordinary market conditions, at a total cost not exceeding 12 per cent of the amount realized by the company. This would allow for a discount of 10.7 per cent from market prices to cover: (1) If the issue is sold through underwriters, discounts and commissions to underwriters (estimated at 5 to 7 per cent), other expenses of the issue (estimated at one-half of 1 per cent), and a margin between market prices and offering prices of 2 to 3 per cent; or (2) If the issue is sold directly to stockholders by means of rights, a margin between market prices and subscription prices of 7 to 8 per cent, other expenses of issue (one-half of 1 per cent), and underwriting costs of about 2.5 per cent of the amount received by the company. A margin between offering prices and market prices on issues sold through underwriters may not be necessary, but such a markin has nevertheless been provided for. A similar comment applies to underwriting costs in the case of stocks sold through rights to stockholders.

"While these allowances appear to be ample in the case of stock issues of reasonable amount to care for new capital needs, such as are assumed in the study of experienced capital costs of selected companies in Chapter VIII, there may be a question whether a margin of 12 per cent would be
sufficient in the case of a wholesale recapitaliza-
1675 tion, or 'reproduction' of the capitalization, over a
relatively short period, such as is assumed in the analyses of current over-all costs in the best investment situations in Chapter VII. Accordingly, 15 per cent was used in the calculations of the latter chapter to cover costs of common stock financing."

(Counsel for the two Commissions objected to the character of the cross-examination by Company Counsel on the ground that it is not directed to the direct examination and tends to delay the proceeding by the reading of long quotations into the record. The Trial Examiner ordered portions of the objections made by Commission Counsel phys-

ically deleted from the record over objection to such procedure by Commission Counsel. Portions of the following questions by the Examiner were objected to by Counsel for the Illinois Commerce Commission.)

Questions Interposed by the Examiner.

In my exhibit on natural gas companies' financing I may have mentioned common stocks and preferred stocks that they issued. I don't know whether I stated anything about cost of the common stock or not.

You ask whether an allowance to the effect that a number of statistics are presented to the Examiner regarding the present price earnings ratio of common stock—whether there should be further considered an element which is called, in the study from which counsel has been reading, a total cost; and whether from my investigation in connection with this and other cases I am prepared to say whether that total cost should approximate 12 per cent of the amount realized by the company. I believe that I would say that if in this case or any other case statistics were presented to you purporting to be earnings price ratios on common stocks, that you should make a careful appraisal of those figures. In all probability I do believe that you should allow something in addition to those figures for the fact that the companies might not receive the same proceeds as they would if they obtained market prices. You should consider also as of any given time the earnings price ratio may not be a very reliable measure of the cost of money. You would have to look at it over a long period of years, because the price of the stock reflects not only the interest element, but in times of rising prosperity it reflects hopes; in times of declining prosperity it reflects despair; and the instantaneous ratio is looking to the future so much that you can't take that as a measure of what the investor has in mind. He is discounting the future; and the rate at which he is discounting the future is probably more important than the nominal rate at the moment.

As I understand it, this figure is not the cost of money; this 15 per cent is not the cost of money. It is the so-called financial cost, discounts, commissions, and so on. As of any time of financing I don't think it would particularly affect the amount of that cost. You ask whether I have any idea what that amount today is. I couldn't say whether this 15 per cent is right or not, without making a more de-

tailed study than I have made. In looking this over some of these figures look a little high, and some of them look a little low.

Cross-Examination by Mr. Morgan (Resumed).

I know what they are talking about in the volume from which you have read when they use that term 15 per cent there. (Objection by Counsel for Illinois Commerce Commission overruled.) You ask whether that 15 per cent as the term is used there refers to the allowance that must be made over and above price earnings ratio as indicated by market transactions in order to arrive at the probable cost to the company of raising equity capital through common stock issues.

(Counsel for the Illinois Commerce Commission objected to the above question and instructed the witness not to answer on the grounds that it is highly improper cross-examination on the part of Company Counsel and the Trial Examiner. The instruction not to answer was then withdrawn, although Counsel for the Illinois Commerce Commission presented his objection to the impropriety of the question.) I am going to have to study the whole report and give my opinion as to something that is contained in it. That is an awful burden and I am not anxious to take it. This report has been published several months and I haven't had an opportunity to look at it. (Commission Counsel then thereupon requested an opportunity to state his objections but the Examiner characterized his objection as "captious." The question was then re-asked by the Examiner and the witness thereupon made the following answer.)

My interpretation of this 15 per cent figure is that it is not a figure that is added on to the earnings price ratio figure; but it is a figure that for the purpose of some calculations made in this study they have used to increase another figure by, namely, the earnings price ratio; in other words, they would take 115 per cent of the earnings price ratio. I don't know anything about what sort of earnings price ratio they were taking, but I am just giving you my conception of what the arithmetic is. In other
1676 words, if you add 15 on to the 10 it would bring you to 11½ per cent.

Redirect Examination by Mr. Slaff.

I thought I had said before that for certain purposes the member of the staff that was preparing that portion of Chapter 7 used that figure of 15 per cent.

Redirect Examination by Mr. Booth.

I didn't say that I disagreed or agreed with that statement. I haven't made an adequate study to come to a conclusion on that point.

Cross-Examination by Mr. Morgan (Resumed).

I don't believe you have asked me to agree to it. I think I did make some comments on some of the elements that go into that 15 per cent and stated some of them looked a little high and some of them looked a little low. I think the burden of the inquiry has been as to the process of arithmetic rather than the equity of anything for the purpose of this proceeding.

Questions Interposed by Mr. Slaff.

You read from page 87 of the same report from which Mr. Morgan was reading a little while ago, the following language: "The conclusion reached from the preceding analysis is that during this recent period the effective cost of capital obtained through bond issues of large size typically includes .16 per cent for cost of financing. For the purpose of adjusting yields to investors at market prices to the basis of current cost to the company, two-tenths of one per cent appears to be a sufficient margin to represent cost of financing in the great majority of situations." You ask if that is substantially what I testified to earlier before the recess. I testified to two-tenths of one per cent as being the spread on new financing in recent years between the yield rates at which securities were offered to the public and the cost of money on those same new issues to the issuers. I wasn't talking necessarily about market yields on other securities.

Cross-Examination by Mr. Morgan (Resumed).

I was talking about bonds very largely at the time. I might include some debentures. I was not talking about common stock transactions. You ask whether I agree with the conclusion reached by the committee as to the spread between the bond yield to the investor and the cost to the company of the bond proceeds. It appears in my studies I have come out to very closely the same answers on this point as were stated in the paragraph. I am just noting now for the year 1936 I computed the cost of money average of 3.73 and an average yield of 3.55, there being a difference of .18. For 1937 the difference on the corresponding basis is .17 and for 1938 the difference is .16. I testified to two-tenths of one per cent in rounding it off a little bit. It comes to about two-tenths of one per cent.

The first page of Exhibit 180 appears from the caption to deal with prime commercial paper, prime bankers' acceptances, time loans and call loans. You ask if this page shows that the interest rates in transactions involving those securities have declined in recent years. I don't recall just for sure but I think it does show those interest rates have gone down in recent years. You ask whether the terms upon which that kind of paper is accepted by investors or banks changed during the period through which the interest rates have been going down. I don't know whether they have or not. I don't know what they would be. As I understand it, some of these are unsecured loans and some are secured. Whether there has been any change of any significance there, I don't know. You ask what type of unsecured loan is found in transactions of a character referred to in page one of this exhibit. Prime commercial paper is, I think, ordinarily unsecured. I am not so sure about the bankers' acceptances. They might be secured in some cases. The time loans may be, but those 90-day time loans are usually brokers' loans and there ordinarily is some hypothecation of securities behind those. Call loans, I don't know offhand.

1677 You asked whether the specification as to whose paper it is is the same as it was a few years ago when the interest rate was 3½ to 4½ percent. I don't know precisely whether it is or not. Just to take call loans, for example, I don't know whether they have changed the list of brokers to which they made loans.

I think probably there must be individuals who borrowed on commercial paper in 1925 who could not borrow on commercial paper now. It might be just the other way around, maybe some borrowing now who could not have done so in 1925, because of changes in the individual borrowers that we are talking about there.

You asked if I didn't know that this kind of paper is now being accepted only from those whose paper is of the very highest order. I think that has been pretty generally true all along. This refers to the prime commercial paper as of any date. It has been the highest type of commercial paper and not only true now but true ten years ago. I don't know whether the requirements to qualify as prime commercial paper have been greatly changed since the 20's. It is possible.

You asked what in my judgment does this type of interest rate have to do with the cost of an overall financing of the capital structure of a natural gas pipeline company. I think, as I said on direct, this information, as well as all the rest of this exhibit, was merely indicated to show interest rates, trends thereof, and just how this would go precisely to the rate at which any company might refinance is a rather indirect relationship to this extent; that is, in the whole money market over a period of time influences in one segment tend to spill over into the other segment, so to speak. What I mean is money tends to seek a level and if the rates are out of line in one place, money will tend to go to that end drive it down, and so on. In other words, these being short-term rates they are for short terms subject to different influences than long-term money rates are, I presume, but I think over a longer period there may be some similarity in trends, and certainly if high grade bonds were yielding five or six percent now people would be less willing to buy commercial paper at the lower rates, which would tend to have the effect of raising the commercial paper rates. There is some inter-relation in the money market between these types of loans. It is a limited one, and subject to a lot of influences, but that is above the best explanation I can give on that.

The congestion of money in the banks at the present time, concerning which I have testified, which is lying there idle, might have something to do with the interest rate that is prevailing for this type of paper. I don't think you could say flatly that it is entirely possible that these interest rates indicate an unwillingness of those who have money to in-

vest it in long-term securities. It might be conceivable. I think it is the real indication of something else. Of course, you want to understand that some of these investors, particularly those who do have the money available, have some limitations upon what they can invest in, technical limitations, legal limitations and so forth.

The demand for new capital has been definitely reduced. That, of course, reduces the fields open for investment by the people who have the funds to invest.

1678 You asked whether I think that in order to use this page 1 of Exhibit 180, that we must go back of the figures there and look into the character of the borrower, the supply of money and the attitude of the owner of money toward making other types of investment than those reflected here, before we can properly appraise the value of that tendency in the interest rates in relation to the raising of long-term money. I have tried to state clearly what relation this might have to other interest rates. I do not know that I can expand on it any more than I have. I have attempted to bring out what inter-relation there might be in the money market among the several kinds of interest rates prevailing at any one time.

You asked what I think it indicates as to the trends of money costs for long-term money. It does not indicate anything directly. I tried to explain that a while ago. It is an indirect relationship. If it indicates anything at all, I don't think we would have to take into account a number of other factors than the mere figures. The figures themselves indicate on the face of them. I have not set out in there the yield on long-term money.

One of the objectives in this proceeding is to arrive at the cost of long-term money. In order to give whatever weight should be given to the cost of money as a factor in rate of return, it would be necessary to arrive at some judgment as to what the cost of money might be. It doesn't necessarily follow that that is why this tabulation and the other tabulations contained in Exhibit 180 are here. They are here to show the trend of interest rates. That is a factor that has been mentioned, just as well as the cost of money. Whatever weight the Federal Power Commission gives to this is up to them. I don't know. They may throw it out altogether. If you are interested in the trend of interest rates, you ought to take several different kinds of interest rates.

You asked whether or not the interest rates shown on

page 1 of Exhibit 180 indicate that the interest rates on long-term money are going up or down. I cannot say any more on that than I did a while ago with respect to the inter-relation of the interest rates on one type of obligation to the interest rates on another type of obligation, as regards trends over a period of time.

I expected those who have the responsibility of weighing this evidence would give it whatever consideration and weight that should be given. If they want to know something about interest rates, as a factor in rate of return, here it is.

Questions Interposed by the Examiner.

You asked what I meant when I said a while ago that this information on short-term interest rates has only an indirect relationship. I am talking about the inter-relation of various kinds of interest rates and yields. The point I was trying to make, at the risk of being too brief here, is that if rates of interest were out of line in one direction, money would tend to flow there and drive those down. What I mean is, you would not find high-grade securities in one field way up here and high-grade securities in another field way down here for a long period of time. They would tend to equal out, because money would turn from one to the other. There is a certain amount of competitive factors in the money market with regard to securities.

1679 If long-term bonds decline in yield steadily over a period, you would naturally expect some decline in the short-term rates. I mean, the two would not get out of line too far over a period. That is, within a given year, of course, short-term rates are more sensitive; they may jump up and down within a short period, different from the direction and scope of long-term interest rate movements.

Cross-Examination by Mr. Morgan Resumed.

I did not put in this page 1 of Exhibit 180 on the theory that it indicates that interest rates, such as are involved in this inquiry, are lower than they were a few years ago. I am not saying what it ought to be used for, beyond information as to the rate of interest. I brought it in here because I thought it was pertinent to the matter of the trend of interest rates. I am not using it.

Page 2 of Exhibit 180 deals with interest rates charged

to customers by banks in principal cities. This differs from the interest rates reflected on page 1 in that it has to do with direct loans, rather than commercial paper in circulation. These are over-the-counter loans rather than open market. These interest rates are lower now than they were in 1920.

You asked if I think the borrowing of money in an overall sense is now being done by the same class of borrowers as was the case in 1920, when the rates were 6.71 in New York and more than 7 percent in the other cities reflected on this page of the exhibit. I would say they are probably the same classes, broadly speaking; that is, they are businesses and individuals. I think possibly the people who were borrowing back in 1920 were harder pressed and probably did not have the credit standing that some of these people do today.

You asked if a great deal of lending of money by banks in 1920 and for many years after that was not to a type of borrower from the standpoint of financial responsibility who would not be extended credit at all by the banks at the present interest rates. I would hate to say that it was or was not. That is a pretty big question to ask a man.

Questions Interposed by the Examiner.

You asked if it is generally known in banking circles that bank requirements are more stringent today upon that type of borrower than formerly. That may be. I do not know. I would hesitate to say that that was true. It seems to me there is more to it than appears there. The appraisal of the difference in that thing is a pretty difficult task. You have got to consider the standing of the prospect of the thing and of the man. Perhaps borrowers cannot show today that they can employ the money profitably, and other things like that. There are a great many factors to be considered, and just what the reasons are is pretty difficult to say.

Cross-Examination by Mr. Morgan Resumed.

You ask if I am not willing to admit that it is more difficult to borrow money at a bank across the counter at prevailing rates today than it was in the '20's. I just think that is too broad a generalization to be answered cate-

gorically. The difficulty is relative to a number of things. I just simply cannot make any better answer to the question. For some individuals it may be much harder, for others it may not be as hard as it was in those days. For a given situation it may be easier to get it now, be-
1680 cause the banks are more in need of loans. Money was pretty tight back in 1920. I dare say there were borrowers in the '20's who could get money much more readily than others. That is always so. All those who could get money at 7 percent in the '20's probably could not get it at 2¼ percent today. You are tracing down individual borrowers, and you just cannot do that sort of thing here.

I do not know that I can give a definite answer as to whether that is true as to the whole class of borrowers whose interest commitments make up the averages that are set out on page 2 of Exhibit 180. The 2.24 percent interest rate as of February of this year is an average. You ask if some of them are getting it for less and more of them are getting it for more. You cannot tell from an average, particularly a weighted average, what the dispersion above and below the average is with respect to individual borrowers.

I have read the Federal Reserve Bulletin. I probably looked at the September, 1939 issue of that publication. You have handed me the September, 1939 issue of the Federal Reserve Bulletin. You have read to me the following language from that issue.

"In New York City, although the average rate is around 2¼ percent, about 60 percent of the money lent to commercial borrowers is at rates between 1 and 2 percent and less than 15 percent at rates above 3 percent. About 20 percent of the borrowers pay low rates between 1 and 2 percent or about the same number reported in each of the rate groups shown in the chart.

"In the seven other northern and eastern cities, about 30 percent of the funds being lent for commercial purposes is at rates between 1 and 2 percent and 60 percent at rates from 2 to 5 percent, with but a small amount at higher rates. Only a few borrowers get the lowest rates and about 60 percent pay over 5 percent, the most numerous paying rates of 6 to 7 percent."

You ask what is the reason, in my judgment, for some borrowers getting money at between 1 and 2 percent and

others, 60 percent of the whole number, paying 6 to 7 percent. I think the largest factor in the difference, belonging to the same general class and so on, is a matter of risk or a matter of the lender's appraisal of the risk. These lowest rates that you mention here certainly could not contain much compensation for risk.

You ask whether there has been any variation in the size of the loans during the period covered by this chart. I do not know as to what the information is as to size.

Page 4 of the same exhibit has to do with discount rates of the New York and Chicago Federal Reserve Banks. You ask whether there is any material difference spread between the rates in these two cities. Right at the present time the rate in New York of the New York Federal Reserve Bank is 1 percent, as compared with 1½ percent in Chicago. I think that reasonably uniformly in the past the Chicago rate has been a little more than the New York City rate.

1681 You ask if I know the conditions upon which a member bank can borrow money through the rediscount operations of the Federal Reserve Banks. There are different ways. I do not know all the precise routines and so on; but the Act, as I recall it, sets down certain statutory requirements, broadly, as to what can and what cannot be discounted. It is short-term paper. These particular rates apply to short-term paper and agricultural loans and industrial and commercial loans and what not. But these, I think, are relatively short-term. I think possibly in the case of some agricultural loans they might go up to as much as six months, but ordinarily it is 90-day paper. I don't think they will accept loans or will accept for rediscount paper that is based upon the financing of security transactions. I think it has to be commerce and trade or agriculture.

The member banks are not permitted, except by indirection, to borrow money through this procedure, for the purpose of lending it to customers who would use it in the acquiring of securities. They might have some eligible paper that they could take down and discount. They might use those dollars. I don't know whether they could or not, but it is conceivable they would use those dollars to lend, mix them with the general funds and then average them out. That would be by indirection. I don't think they can.

You ask whether these rediscount transactions have a

remote relation to the cost of long-term money through the issuance and placing of securities. I do not like to argue about the word "remote". It is still a very indirect relation. There are other things here. For example, banks can also borrow by discounting their government holdings. So this thing consists mostly of potentialities. I believe I said on direct that the banks are in debt only a few million dollars to the Federal Reserve, whereas back in the '20's they operated on a large volume of debt to the Federal Reserve. These things are not very effective now, as I stated on direct.

I think I said there was something like five million dollars being obtained through the rediscounting of paper by member banks through the Federal Reserve in 1939 as against one or two billions at the end of 1928. So the banks practically have no debt to the Federal Reserve as a whole. Of course, as regards an individual banker, if he is in debt, this thing is just as important to him as to anyone else. I mean to an individual banker it might be very important; but in the economy as a whole it is not important.

You ask whether it is my view that the yield on government bonds is significant as bearing upon the cost of long-term money. It is no more significant than any other interest rate. The point is that it is one of many rates of interest yield and should be considered along with all others, of course, but over a period you still have this same indirect effect. I mean, if yields on government bonds were to fall very sharply, less and less people would be willing to buy at those prices. They would want more and they would, therefore, turn to other sources, namely, corporates and other investments, and tend to drive those down. That is the point I have been trying to make all the way through here.

You ask if government bonds, as a matter of fact, are not sold on a sustained market. There has been some support from the banking system for the prices and market on government bonds. How far they go I do not know. I think it is commonly recognized that the Federal Reserve
1682 System has participated in effecting this cheap money policy of the government in recent years. There is no argument about that, and if you will look in one of my other exhibits, you will find how much the holdings of the Federal Reserve System are with respect to the U. S. government bonds. For long periods there it does not

change in total volume at all. There was some change in the fall of this year when the market broke. There was some increase in the amount of Federal Reserve holdings of U. S. government securities along about September when the market was breaking. It has since gone down a little bit. I mean, they have since liquidated a part of the holdings, I think.

I think I remember seeing something in the daily press that the Federal Reserve System for the time being was withdrawing its support. Just what it was precisely I do not know. I do not know just when this support was resumed, but I think as a general proposition the support was resumed and the decline in prices was immediately checked. Just what the time was, I cannot say.

You ask whether I don't think it would be extremely dangerous to rely on the yields of government bonds under those circumstances as indicative of the trend of interest rates on long-term money. They are perfectly reliable as the measures of the trend of interest rates on long-term government money, and going back to the same proposition again, over a long period of time if governments fall you could probably expect other high grade liens to fall too, because of various strata in the market, of people who have different ideas as to what they want on their money. If one sort fell below that they would go to another, and so on.

(December 2, 1939.)

(At this point counsel for defendants produced a letter from Mr. C. J. Peterson and stated to the Examiner that it was in response to a request by the Examiner or by counsel for one of the Commissions in explanation of the ideal cross section offered in evidence as EXHIBIT 16. Counsel requested that the letter be read into the record. The letter was dated November 29. At the direction of the Examiner the letter was read into the record. It follows:

"When I was up in Chicago, a short time after I had been on the stand I furnished copies of the logs used in my cross section of the Panhandle field to the Examiner for the Federal Power Commission. I believe these were handed to the Examiner by Mr. Garver.

"These logs, beginning at the left hand edge of the cross section, were numbered from left to right Nos. 1 to 14, inclusive. In checking up these logs the other day I find that one of these logs I furnished did not belong to the cross

section. This log which was handed in in error was Log No. 10 and is the Stubblefield Shell Jordan No. 1 well, located 330 feet from the south and east lines of the Southeast Quarter of Section 104, Block 4, I. & G. N. Survey, Carson County, Texas. The log which should have been given the Commission is Timms Jordan Brown No. 1 well, located 330 feet from the southeast corner of the Northeast Quarter of Section 104, Block 4, I. & G. N. Survey, Carson County, Texas.

"I presume this matter should be corrected and I am enclosing herewith eight copies of this Log No. 10 which should be substituted for the Log No. 10 which I formerly submitted."

1683 Counsel then requested that the log referred to in the letter be substituted for Log No. 10 formerly submitted by Mr. Peterson in his Exhibit No. 76. At the direction of the Examiner, the log produced was marked Exhibit No. 200 and was received in evidence without objection.)

You ask whether I know the names of the fifteen cities whose bonds were included in Column 2, page 5 of Exhibit 180. I put those in yesterday. The City of Chicago apparently has no bonds in the list.

You ask whether I know the comparative amounts of government bonds held by banks now as compared with 1929. As of March 27, 1929, all member banks of the Federal Reserve System held $4,454,000,000 of United States government direct obligations; as of December 31, 1929, the corresponding figure was $3,863,000,000. As of December 31, 1938, as shown in Exhibit No. 183, Table 7, the holdings by all member banks of direct obligations of the United States Government were $10,882,000,000.

On page 6 of Exhibit 180, in the caption I refer to the Annalist Average of Yields on ten high grade railroad bonds, 1857-1939. The Annalist is a weekly financial magazine published by the New York Times Company. By the term "high grade", as used in the caption, I understand that to mean the most choice or the best long-term bonds available in the railroad bond field as a whole. It is the top of that particular market, I would say. It is the top of the bonds of that industry.

When on page 7786 of the record I stated that the purpose of that exhibit was to present the longer-term picture of yields on what might have been considered fairly high grade type of long-term corporate bonds. I don't believe

I intended the word "fairly" to detract from the quality. What I had in mind was bonds considered by investment circles generally to be the higher grade bonds. I dare say a number of them probably would be found in the group of Moody's Aaa bonds, more particularly in the public utilities list at the moment than the railroad list. The list of bonds going to make up these figures has been reduced from 10 to 7 this year.

The reason for that I know only in a general way. I speak broadly from my own interpretation of what the situation is. I feel it is probably due to the fact that the number of bonds in the railroad field now considered of such high grade and also meeting the statistical requirements in the average is probably getting so small that they found it desirable from a statistical point of view to reduce the number to seven. I have some extracts here somewhere from the Annalist where they talk about that a little bit, if you want to look at that and read something into the record from it. I don't know whether or not the three eliminated were the bonds of three railroads which run out of Chicago.

You state that the railroads whose bonds were eliminated are: The Chicago, Burlington & Quincy Railroad Company; Pittsburgh, Cincinnati, Chicago & St. Louis Railroad Company; and New York Central & Hudson River Railroad Company. At your request, I will check and determine whether they are the three railroads and also whether all of these railroads run out of Chicago. I think they all have terminals and railroad tracks and trains running out of Chicago.

You ask if the yields of these high-grade bonds shown on page 6 of the exhibit have declined over the past several years. In this particular series the decline is not uniform certainly over the past decade, we will say, or fifteen years, even, in that in 1939 and probably also in 1938, the 1684 averages in this particular series are higher than they were in 1936 and 1937. There have been only those two years when the yields of those series of railroad bonds were lower than in 1938, unless we count 1935 when they were practically the same. It may well be that some of these bonds had earnings times interest in series of the prior issues of sometimes eight and ten times.

You asked whether or not if we compare the yields of this series of bonds with the yields of the 40 bonds used by Moody's as a part of the 120 bonds that are so commonly

used in statistical studies, we would find them to have the same yield. Moody's list of 40 bonds, if there are 40 in there at the moment, would undoubtedly have a higher yield than this series on page 6 here.

On Chart No. 5 of Mr. Knapp's Exhibit 185 it appears that as of August, 1939, the yield was about 4.41 on the 40 railroad bonds. You ask then if this page 6 of my Exhibit 180 is not just another illustration of low yields on the very highest type of the class of bonds under consideration. I think the question is a little bit argumentative. I would say probably that for high-grade railroad securities the yields presently are not so low in relation to other high-grade yields, so the primary purpose here was to present a longer run picture of yields. It is an illustration of comparatively low yields on securities. These are lower than the yields on the poorer grade of securities, definitely. And they are also higher than the yields on the high grades in other lines. It is one of the few lists with which I am familiar that goes back as far as 1857. I do not know right now whether I could name another very readily. I believe there are others.

It is true that these low yields reflected by this chart have to do with the highest grade of securities in the railroad field.

The Annalist has some figures dealing with high-grade public utility bonds also. These are dealt with on page 7 of this same exhibit.

The term "high-grade" on that page means what it does in the tabulation shown on page 6. I think it likewise means that the bonds chosen were those that in the opinion of the Annalist were the cream of the crop. They are not representative of all utility bonds.

You ask if allowances would have to be made for that circumstance in the use of these yields for any purpose looking to the arrival at a proper rate of return. I think, as I believe I said yesterday, that insofar as interest rate yield figures are used by anyone in any fashion in forming a judgment as to fair rate of return, he should look not to one series alone; he should not look alone to high-grade securities; he should not look alone to low-grade securities. He ought to get a fairly informative picture so he would have some judgment in his own mind as to what prevailing levels were in various fields. I think there are really two things involved. The yields of the highest grade of

securities are sometimes said to reflect money rates, whatever the economist may say that means, whereas on the lower grade you get a reflection of credit. Now, if one is interested in the money rates as such, presupposing that his interest is directed toward obtaining an elimination of extraneous factors, such as risk, then he would want to look at the high-grade, particularly, I think. But that is only one of the various factors there.

1685 You ask whether this yield continued on through September and October at this same level of yield at 2.85 that prevailed in July and August. I think I brought that down to date on my direct. I have a figure here for the week ended September 23, 1939, of 3.26 per cent, and that was about the peak that it reached, because the bond market reached its worst point about the end of the third week of September. Whether this is the worst point or the best point is all from the point of view.

The bond prices reached their lowest point on September 23, 1939. For the week ended October 14, 1939, the corresponding figure was 3.10 per cent. Of course, that is over a month ago now. I do not have here with me any later information, I believe. I would say it probably has not got down to 2.85.

All these figures are taken from current market quotations and not from yields to investor at the time of original issue. I do not know what percentage of the total capital of the companies included in this list of ten high-grade public utility bonds was raised or represented by the issues involved here.

That would not necessarily be an important factor to know about these bonds before the yields are utilized for any purpose. This is defined as high-grade now. Presumably they have been selected on the basis of whatever tests the compiler used. He probably has taken some of those things into account in arriving at the definition of high-grade.

The property coverage as well as the earnings coverage has something to do on whether or not a bond is high-grade.

You ask whether I would expect bonds of this character to be a very high percentage of the total capitalization. I should not think it would be anything like 75 per cent. It is probably less than 50 per cent. I do not know how much less than 50 per cent it was. I do not have a list of the bonds covered by this page 7. I have written the Annalist and they have not favored me with a reply. I do have an

extract, a sheet from the issue of the Annalist of February 1, 1939, in which they have an article entitled, "The Annalist Average Net Yield on Ten High-Grade Public Utility Bonds," in which they present that thing for the first time, I believe, and they do publish a list there.

The first issue is Bell Telephone First and Refunding 5s, 1960, Series C. It does not say what Bell Telephone Company. I asked the Annalist about that in a letter to which I have had no reply. I checked through Moody's Manual to see if I could find a Bell Telephone Series 6, 5 per cent, due in 1960, and upon the basis of this check I would think the bond referred to here is Bell Telephone Company of Pennsylvania, as it has such an issue. The next issue is Cincinnati Gas & Electric First 3¼s, 1967.

(At this point the Examiner directed the reporter to incorporate the names of the companies listed and, in pursuance of such direction, they were listed as follows:)

Bell Telephone First and Refunding 5s, 1960, C.

Cincinnati Gas and Electric First 3¼s, 1967.

Consolidated Gas, Electric Light and Power, Baltimore 3¼s, 1971.

Dayton Power and Light First and Refunding 3¼s, 1960.

1686 Duquesne Light First 3¼s, 1965.

Edison Electric Illuminating, Boston First Sinking Fund 3¼s, 1965, A.

Illinois Bell Telephone First and Refunding 3¼s, 1970, B.

New England Telephone and Telegraph First 4¼s, 1961, B.

New York Edison First and Refunding 3¼s, 1963, D.

Pacific Telephone and Telegraph Refunding Mortgage 3¼s, 1966, B.

Page 8 of Exhibit 180 has to do with all of the bonds listed in Standard's Bond Investments, which contains a pretty comprehensive list of bonds. My exhibit is based upon Standard's list. The bonds that actually go into the averages here are a reduced number of bonds because of the eliminations made from the list for statistical reasons.

You ask what justification there is for eliminating any bond for statistical reasons. Bonds selling above call price should be eliminated, because the yield to maturity on such a bond is not a wholly representative indication of the rates on such a lien. Special features, such as conversion features, possibly influence market price of a bond.

You ask if it is also necessary to exercise some degree

of selection, either to select those to be used or those to be thrown out, in dealing with statistics. I think you have to set up your specifications in a thing like this, yes. You ask if that is what I meant when I said "they attempt to get figures that are representative yields and are not distorted by some particular momentary situation." That is something else. I think it is referring generally to their processes of selection. There are reasons why they do certain things.

I used the explanation A-1 plus, A-1, A, B-1 plus, B-1, B, in my section dealing with public utility bonds. These ratings correspond generally to Moody's Aaa, Aa, A, Baa, Ba, B, in the same order.

You ask what significant fact do I get from reading across the first six columns of figures to the right of the year 1925, under the captions A-1 plus, and so on. I think it shows that as the quality falls the yield rises. I think the most important factor entering into this is the differences in the investor's opinion as to the amount of risk in the various grades of securities. If the degree of risk is higher, then as of that time it is the ordinary thing for the investor to ask for greater compensation. These yields are based upon market prices, or sometimes they may use bid prices or other prices that do not actually reflect actual sales, but the general idea is yield to investors here.

The average yield for the year as shown here for the year 1925 on B bonds was 7.92 per cent. The corresponding figure for the A-1 plus bonds was 4.92 per cent, an absolute difference of 3.00, or 61 per cent of the yield on the A-1 plus bonds. In 1938 the yield on the A-1 plus bonds was 2.88, the yield on B bonds was 7.93, an absolute difference of 5.05. Stating that in terms of percentage of the yield on the A-1 plus bonds the result is 175 per cent. The spread between the yields on the two ratings of bonds increased quite a bit as between those two years.

You ask whether that indicates a higher premium for safety or corresponding additional demand for risk compensation. I think two things are involved here. One thing is that there may be some increase in the investor's request as to the amount of compensation he wants 1687 for a given risk. It may mean also, and I think this is probably very important, that those who have the great bulk of the investment funds are restricted by the nature of their operations or the laws under which they operate or the principles under which they operate to

investments of the highest grade. That has tended to drive the low yield down.

I think that during the cross-examination at Washington at the last session there were some extracts from the New York insurance law read into the record. Some laws of New York with regard to investments of mutual savings banks and the like. That is an illustration of what I mean that some investors are restricted by the laws under which they operate. I believe that there are some statutory requirements there set up which are predicated upon the idea that bonds that can meet this test will be high grade. That does not always follow; but that is the motivating force. I was just reading this morning in one of the insurance company's pamphlets we have around here where the insurance company was setting forth how they were restricted to higher grade securities. No, that is not a new law.

In view of the absence of additional high grade financing, most of it being refunding rather than new issues—there has been keener competition among those investors for those high grade securities. That has been one of the factors which has influenced the yield drop on them.

I would not accept as a generalization your statement that there is a pronounced disposition on the part of those who have no legal restrictions, and who can do as they please with their money, to seek safety of investment rather than compensation for risk. Some people are investing today in very risky securities, just as they always did. Some people are seeking safety, some of them are taking chances, and so on. I think it is generally true that at any time in the market you will find people investing for different reasons and for different purposes. You ask if we will find the same percentage of people who are investing money in 1938 and 1939 who are willing to go out and put their money at risk for the compensation promised at this time as was true in 1925. I think probably today the percentage of speculative money is somewhat less than then, because a lot of speculative money has been lost.

It is true, there is a lot of money in the banks which belongs to private individuals. It is largely staying in the banks. You ask if the yields are about the same in 1938 as they were in 1925 on B bonds and B-1 bonds. The B average of public utilities bonds for the year 1938 was 7.93, which was only one-hundredths of one per cent higher than in 1925. The B-1 was 6.98 as compared with 6.74, a

difference of twenty-four one-hundredths of a point. The overall yields on those two classes of bonds were slightly higher in 1938 than in 1925. I don't know what the risk premium is in there. The yield on the high grade bonds is lower in 1938 than in 1925. The yield on the high grades is, of course, materially lower than it was in 1925. I can't separate that figure between the so-called pure interest and between the risk premium and between all the other factors which Dr. Dorau gave as being elements in the total figure. I can't split it up. Whether anyone has changed over the period in relation to the other is a debatable point.

You ask what course the yield since January, 1939 has taken with reference to A-1 plus bonds. The yields on the A-1 plus public utilities as shown here on page 8 of the exhibit, beginning in January, 1939, have a slightly downward trend. That continues into July of 1939; so the trend would be downward to July. It was up very slightly in August, up quite a little bit more in September, and probably down a little bit in October. I don't have the figures.

1688 In September, 1939 the yield on the B bonds was 6.61; the yield on the A-1 plus, 3.17, an absolute difference of 3.44. And the difference, stated in terms of percentage, as we expressed it in the other instances, is 108 per cent of the spread as of January, 1939.

You ask if there is the same tendency to demand higher yields as I go from A-1 plus through the other grades to B bonds in the railroad classification. That seems to be true, in the early years; and also in these later years. I think that there is a step-up by grades of bonds in the yield both in the utility and in the railroad bonds. I don't want to give too much validity or weight to these ratings as such that these investment services put on the bonds. By and large they are fairly indicative of quality; but there are notable exceptions, of course. You state that you are asking about what this exhibit shows. Yes, insofar as the yields on various qualities of railroad bonds are concerned, as the quality goes down the yield goes up.

Comparing the yield between A-1 plus and B bonds in 1925, the absolute difference is 2.73. That is 57 per cent of the yield on A-1 plus bonds. In 1938 the spread between the yields on A-1 plus and B-1 railroad bonds was 4.99, or 140 per cent of the yield on A-1 plus railroad bonds. Going back to 1925, it turns out that the spread between the

yields on A-1 plus and B-1 bonds was 48 per cent. Comparing the yields on railroad bonds of the B-1 rating and of the A-1 plus rating, for the period indicated on the sheet as October, I find an absolute difference in the yields of 3.75. That is a percentage of 103.

Passing to the industrial bonds, I find the absolute difference between the yields on A-1 plus and B-1 industrial bonds in 1925 to be 2.56, and in 1938 to be 2.86. The percentages are 51 and 91 respectively. In September, 1939, the absolute difference is 2.15. The percentage is 70. (Objection by Counsel for Illinois Commerce Commission overruled.)

Exhibit 183, Table 1, deals with a number of banks and amount of bank deposits in the United States. It appears that there are about half as many banks in 1939 as there were in 1923. You ask if I think that is a matter of importance in a study of this kind. I do not think it is of great importance. I think there are certain conclusions that might be drawn from it. It might be used in some ways in connection with the interpretation of a trend of the volume of deposits. It might be used in some ways in connection with the availability of credit in various areas. I mean, the fact a great many banks have closed up out in certain sections of the country may make it more difficult for the people in that section to obtain credit and other banking facilities, and so on. I mean it is sort of localized.

You point out that the table shows that the bank deposits have increased from 42 billion dollars to 55 billion dollars and ask if that doesn't show that we have banks enough to take care of these increased deposits. Those are the deposits of those banks and the deposits in any closed banks are not reflected in those figures.

On June 30, 1939 the volume of deposits in banks now doing business was $55,988,000,000. It is an increase over some of the earlier figures. I don't know that it is the absolute peak. 1928 appears to be the absolute peak; but when compared with 1923, the first year shown on the
1689 chart, there is a substantial increase of about $13,000,000,000. That is a great deal of money even in these days.

Yes, I said at page 7822 of the record that the outstanding factor influence has been the large volume of idle funds that has accumulated in recent years. I still stand by that statement. I said that these idle funds are reflected in the banking system in two forms; namely, deposits in banks

and excess reserves of the banks themselves. The one doesn't precisely include the other as you indicate.

The deposits in the commercial banks represent funds of depositors. The funds of which the excess reserves are made up, those are bank deposits in the Federal Reserve banks and the sources of the funds may be somewhat the same, or to a large extent the same, but they are different items definitely. It may be that the reserves which the member banks deposit with the Federal Reserve banks are often the same funds that are on deposit with them so they won't keep so much cash on hand. They may keep some of their own funds. You can't tell. These deposits with the Federal Reserve are cash deposits. The deposits in the banks themselves, a great deal of them, are merely credit money, you might say.

You ask if it isn't true that we can't take the two and add them toge ' er and get the sum total of idle funds without analyzing to see how much of the reserve of the member banks are included in the Federal bank reserve. I wouldn't attempt to add them together because they operate in different ways.

You ask my theory as to why these idle funds have accumulated in the banks and why these deposits are so much higher than they were a few years ago, notwithstanding the sentiment that seems to be somewhat abroad that we have had hard times and have them now as compared with former years. As I stated on direct the principal factor contributing to the increase in the member bank reserves has been an increase in our monetary gold stocks, because those reserves are after all hard cash. One of the big factors in the increase in deposits has been the deficit financing by the United States government which has resulted in credit expansion and that has involved the creation of deposits.

You ask if the idle funds of the depositors which are lying in the banks are there in my judgment for that reason. They are there because whoever has the title to them feels for the time being that is where he prefers to keep them. That is the form in which he prefers to keep that money rather than in some other form, subject, of course, to the limitation of opportunities of using them in the ways he thinks are compensatory to him.

You ask if I am in agreement with the suggestion that he is not willing to put his money into the industrial activities for the reward that is promised him at the present

time and under present conditions. That may be part of it. I mean some people who have these idle deposits prefer to have them idle rather than underwrite the risks they would have to underwrite in order to get the rate or get the expectation of the rate they might want. Another factor is the absence of feasible opportunities. I mean, you have to draw a distinction between what is a risk and what is just plain fool-hardy. Risk is essentially uncertainty and if a project is definitely on its face not economically feasible then it isn't a matter of risk, there is no uncertainty there. On the contrary, you are pretty certain the thing is doomed to failure. There is that distinction.

1690 You ask whether it isn't a fact that in order to attract capital to risk investments it is necessary to offer what the investor conceives of as proper compensation for the risk involved. (Objection by counsel for Illinois Commerce Commission overruled.) I certainly think in order to get an investor to buy something he has to be satisfied with the terms. You can't force it down his throat. It is not mandatory that the investor buy things. It is still a free country, as far as I know.

You asked me this question, "If at present the situation is that we have large volumes of money which are lying idle, as you have stated, and if one of the reasons why that is true is that those who have money to invest at this time are not willing to put it to risk for the compensation that is promised under the present conditions, in order to get that money into investment, will it not be necessary to offer more than the present level of returns on investments if the idle funds are to be put to work." (Objection by counsel for Illinois Commerce Commission overruled.)

I think about the best answer I could give to that is to break it down somewhat. I am answering also in the light of the two "if" clauses in the question, and that is this: We assume also that part of the idle funds represent funds of people who by preference will invest in, say, government securities, but if they also have a preference for a rate of interest higher than that currently available on government securities, they would not invest. That is, I think, the general idea of the question, and to that extent I would probably agree to breaking it down in that fashion.

If investors have these two preferences of types of investment and also rate of interest and they cannot get the

two together, they are more apt to just pass it up altogether, or something like that. I think that is a distinct possibility, considering individual investors.

You ask whether or not I have said earlier in my cross-examination, and also in my direct, that the tendency of these figures which I have brought in here in my several exhibits indicates that there is a disposition to seek safety as opposed to risk. I do not think I stated it quite as broadly as that. I think that may be just one factor. I think equally important, and perhaps more important, is simply the lack of available investments.

I mean available investments that offer reasonable possibilities at all. I think the banks would be glad to extend and expand their commercial loans if the proper kind of opportunities were available; if the demands of consumers, and so on, for goods and services could be increased such that they would make this additional business feasible at all, and, therefore, create a demand for commercial loans, the banks would probably be glad to make those loans. They have the funds available to do that.

You ask if the banks would be favorable to making the loan if there was greater compensation for the risk involved in the loan. I just do not go along fully with that, because I think in any time, even in the so-called good days in the nineteen twenties, there were probably a great many demands for loans turned down because the bankers decided the project for which the loan was to be used was not feasible at all; and that same situation would exist today, as far as that goes. That is what I tried to point out a while ago, the difference between risk on the one hand, and the outright unfeasible venture on the other. I think I have stated in substance that one of the things that is

1691 responsible for the accumulation of idle funds in the banks is the circumstance that the owners of those funds or the banks which control them are not willing to put them into risk at the compensation at present offered. I said also here again today that some of the investors are not willing to accept the rates that are currently available on the types of securities in which they ordinarily invest. They prefer to leave the funds idle. That is one of the factors.

You ask how we are going to get those idle funds into investments unless we increase the compensation for the risk involved. I think the answer is still the same that I

gave a while ago, that first you have got to bring about a revival of demand for investments. I mean, the two things, the demand on the one hand and the supply on the other, must be considered together. If you take commercial loans, again, if there were substantial increase in the demand for commercial loans, and if those loans were of the character in which banks invest, you could still have quite an expansion there without a material change in rates charged on those because of the existing level of rates, but if the demand were great enough eventually you might get the rates to go up again.

By demands for investments, I mean the request by people who are engaging in business for funds with which to expand their activities.

You ask what is going to induce them to request that money and to want it. The opportunity to employ the capital profitably. I cannot connect that up with your suggestion that they must have an opportunity under circumstances that will yield them more than they are offered under the present conditions. We are talking about the entrepreneur and that is the man who is borrowing the money. Now we are going back to the man who is lending him the money. There is plenty of occasion to use capital in this country at a price probably. I know that the government is building projects of one kind or another all over the country. A lot of those are justified on a social ground rather than economic ground, however. Yes, school houses and other improvements are being built all over the country that involve the issuance of securities. And the government is putting up the money in a great many of those instances. I don't know the proportion. (Objection by counsel for Illinois Commerce Commission overruled.)

You have asked me to look at Moody's Public Utilities Manual of 1939, to the second portion, of what might be termed the blue section, under the caption, "A Nation-Wide Survey of Public Utility Progress". I find here in this volume of Moody's a map or chart that has the title, "Location of Federal and District Power Projects in Relation to Utility Holding Company Systems." It indicates by symbols throughout various sections of the United States, the map of which is shown here, the location of various federal and state and district power projects. There are quite a few of them. Beginning on page A-33,

there is a list here that carries the caption, "Government Sponsored Power Projects," that begins about a third of the way down the page and apparently continues for approximately two pages, including foot notes and also including some PWA allotments for electric power projects in various municipalities, apparently, and information of that character. (Objection by counsel for the two commissions overruled.)

You ask why private capital is not doing that. I think probably there are a number of reasons why government money is being used. I do not profess to know all of them. One that I feel is possibly rather important is that some of these projects involve overall things that private
1692 industry, under our present system, could not economically participate in. They could not pay out on them. I mean, wherever gains are of a social nature, or wherever a project consists of several things,—power, flood control, rehabilitation, and so on,—where in order to make the project as a whole feasible it has to cover these various things, some of which private industry could not go into as we do business today, then you get something that is a function of government, as I see it. Now, that is one of the contributing factors as to why these things are being done, probably.

Another reason is that the people involved in some of these projects might not be able to get the funds at a rate that would permit them to undertake the venture. That is the other side of the picture. But there are two things involved there, at least two; probably there are many more if we were to make an exhaustive study of it.

If we turn the second reason over and eliminate those projects that are purely of a governmental nature and get down to these that are being financed by the government because private industry cannot get the funds with which to do that same work, they might not be able to get the funds at all. I do not think I said that they cannot get the funds at the present level of returns. Some of these little bit of towns might not be able to get money at all from private sources, if you want to carry it to that extreme.

You ask if one of the reasons that is given for the large amount of money which the government has found necessary to expend in projects of this character is not that private capital is unwilling to do it. (Objection by counsel for the two commissions overruled.) Well, the term

"unwilling" of course, is something we might argue about; but assuming by that that they are unwilling to do so because they do not see that the return would be compensatory, I can also point out that is the very nature of the situation, for reasons I stated a moment ago in connection with projects involving more than what we might say business is interested in, or of a nature that private capital is not interested in. I note on page A-34 that one of the allotments is to the City of Springfield for an addition to its municipal electric system there. I don't know whether you would be apt to get private capital to go into a municipal system, which is competing with private systems. So there are various reasons why private capital is unwilling to do some of these things. No, it is not an unusual thing for a municipality to issue bonds and sell them to private capital. I think the City of Springfield does have municipal bonds. Whether they are on the power plant or not, I do not know.

Springfield might be further illustrative of the first point I was talking about, in that they completed a few years ago a big municipal project down there, including a lake, a resort place, and parks, and so on, and connected with it was the power plant. Whether or not private capital would enter upon that sort of enterprise is doubtful. Oh, yes, many bonds issued by cities, even for the purpose of acquiring or building extensions to municipal utility plants, have been floated in private circles. Sometimes they are purely revenue bonds. Somtimes they are guaranteed by the whole faith and credit of the municipality, and its taxing power. Yes, they are still being floated.

You point out that at page 7776 I stated I had devoted many years to the study of accounting, statistics and
1693 mathematics, finance, money and banking, economics, public utilities, and similar fields. Then you ask my opinion as to whether or not it will be necessary to offer more inducement in the form of compensation for risks to that part of private capital that is not now invested because it is not willing to take the risk for the compensation offered, in order to get that capital into industry. (Objection by counsel for Illinois Commerce Commission overruled.)

I again have to answer as I have been answering. It is not merely a question of risk. It is partly being able to show the investors that there is actually an opportunity here for employing money. The project has to be feasible,

in the first place. Then you appraise the risk after that. I mean by that an opportunity to employ capital in enterprise and make money on it. Of course, we can always put capital to use in an unsound venture; but we have to show that conditions require that additional capital be embarked upon some enterprise for some purpose, and that it is going to be something that the public is going to pay the bill for; that there is a demand for it. I think there is a distinction there between those two things.

Yes, some capital has ventured into risks during these depression years.

You asked why money that is lying idle in the form of idle deposits and the excess reserves of the member banks with the Federal Reserve banks isn't out at interest. A very important reason, I think, is the lack of opportunities for the kind of investments that banks can make; the investments that are attractive to banks; and I think that lack of opportunity has resulted in the decrease in interest rates on bank loans.

You ask if I think it is the lack of opportunity rather than the lack of desire to get into industrial enterprise. That goes back to the other part of the question. Lack of opportunity must be thought of in terms of feasible opportunity. I think I have explained that they must be attractive enough to induce capital to come in.

You ask whether I think the figures shown in Tables 2 and 3 in Exhibit 183 are indicative of the financial or economic condition from year to year during the years 1923 to 1939. They have some significance in connection with the interpretation of the other pages in the exhibit; very broadly speaking. You can't accept these figures as being an exact measure of the turnover. It is intended to show the trend. Statistically it is a pretty difficult thing to handle, so I would not want to bind anybody down too closely on this thing. I am only trying to give some quantitative measure in connection with this matter of the turnover of bank deposits. This, being a ratio, it would be influenced by two factors. It would be influenced by the amount of deposits, and by the amount of bank debits.

In 1939 the deposits were $38,000,000,000, and in 1928 $35,000,000,000. In 1935, I see $32,000,000,000. In Table 3 it appears that the turnover in 1928 was approximately at twice the rate as in 1939. You ask in which year was the effective capital the greater, in 1928 or 1939. I don't think

I know what you mean by effective capital. I don't think you can measure the effectiveness of capital by the turnover. The turnover is not intended to measure that. It is intended to measure the idleness rather than the effectiveness. I don't know what you mean by effectiveness.

1694 You ask if there is any difference in a million dollars which is turned over 43 times and a million dollars which is turned over 22 times. It has some bearing upon the ability of the banks to make loans. It has some bearing upon the liquidity, and so forth.

I am trying to present these figures on pages 2 and 3 as an indication, first, of the idleness of funds; and second, to indicate that the volume of funds could be probably turned over more rapidly than they are now being turned over; and that they would naturally support a greater volume of economic activity than they do now.

(December 4, 1939.)

I prepared Exhibit 781.

I have here information concerning the financing of nine of what I call natural gas systems. You ask if any of them are engaged in natural gas operations. Some of the top companies are holding companies that probably have no direct operations themselves. You ask how I went about selecting these particular nine companies. I took everything I could, everything that I thought was financing by natural gas systems, with the exception possibly of a few small instances, and with one exception wherein I was not able to get at the time information that satisfied me as to the nature of the financing. I don't mean that this list includes all of the natural gas systems operating in this country.

By "everything" I mean all the new financing in this line that came to my attention in the various sources I consulted.

By the expression "in this line", I mean in the natural gas industry generally. There may be facts to which I do not have access.

The period of time covered by this exhibit is beginning with the year 1936 and continuing down to as late as I could get information at the time I was preparing this exhibit. I can't be too dogmatic about it because some may have escaped my attention. I know financing goes on about which the public does not have information.

By natural gas system, I merely mean companies or a system of companies, thinking now of holding companies and subsidiaries, which are concerned with natural gas operations to an extent that they would appeal to me as being natural gas systems.

You ask whether I don't regard Natural Gas Pipeline Company of America and Texoma as constituting a system, in the sense that I have used that term. I don't know offhand where I would draw the line as to the top companies in the picture. It is my understanding that defendants do not distribute gas in their own names, certainly.

By the expression "in their own names", I mean, some gas might be taken directly off of the pipeline, and might physically be delivered to a consumer, but they perhaps don't do it in their own name. I don't know that that is the fact. I know enough about it to say that it is conceivable. I don't say that it is true. I said it is conceivable, and I am thinking of the interruptible gas sales here in the Chicago area. I am not sure just what the physical facilities are by which these deliveries are made, who owns those actually.

1695 Yes, I know the facilities of defendants terminate at Joliet. I was possibly thinking more of the Chicago District Pipeline Company than I was this; except also I believe there is some industrial business down near Streator, around in there, which is—I don't know. I believe that a reasonable person reading the record ought to be able to come to a conclusion as to what is being said.

Questions Interposed by the Examiner.

My contention had to do with the actual basis of my selection in answer to Mr. Morgan's question as to how I went about selecting the companies I discussed in Exhibit 181.

I do not have any facts in mind as a basis of my statement that defendants were not distributing natural gas in their own names. I was merely attempting to explain my thought processes. Perhaps I went too far in that regard. I think that there are situations in Illinois where deliveries are made direct from the pipeline to a customer, or substantially in that fashion, and billings are made by the distributing company. It is a very fine point.

Cross-Examination by Mr. Morgan (Resumed).

You ask if that was in connection with defendants' system. That is in the state of Illinois. The basis for my thought that such a thing was conceivable is based upon what has happened, or what I recall as having happened, or is still happening in Illinois. In selecting the nine companies shown in my exhibit, I did not have in mind the thought that defendants might be distributing gas in somebody else's name.

You ask whether or not I stated near the bottom of page 7798 of the record that this exhibit represents my interpretation of the facts and figures which I gathered from sources named in my testimony. I gave here at page 7798 the number of various sources from which I took the information. I might have copied some things verbatim, or some facts verbatim, and I might have paraphrased in other cases.

You ask if these prospectuses I have mentioned here are the documents to which reference has been made in the testimony here and which have been filed with the Securities and Exchange Commission. There is one document that was filed with the Securities and Exchange Commission in connection with the flotation of securities.

You ask how I got hold of them. I asked the bankers for them. You ask whether or not they are circulated among the public after they are finally approved by the S. E. C. I don't know anything about this approval business that has been argued here. I get these prospectuses in this fashion: New issues of securities are mentioned in various ways; newspaper advertisements, newspaper stories; they are listed in the Commercial and Financial Chronicle; they are mentioned in S. E. C. releases. When I see anything on which I wish to have the prospectus, I direct the librarian of the Illinois Commerce Commission to go to or to write to one of the underwriters and obtain a prospectus. I have a pretty large file of them over there; I think all public utility prospectuses, or certainly most of them during the last few years. To digest them in detail is an impossible job for one person. I consult parts of them frequently. Usually; I have no difficulty in getting them when I ask for them. Once in a while there is some difficulty. I don't know how many copies are printed. I don't know what they

do in the way of circulating them. I have said that I
1696 have been able to get most of them. That is the reason I consult these prospectuses. I don't go over to the S. E. C. and get certified copies of them before I use them. I could not consult them if I did not have them, of course. I also used Moody's Manual. I am not sure I used Poor's. I know I have stated that I used it. We don't keep Poor's in our Chicago office; we do have it in the Springfield office. The extent, if any, to which I consulted Poor's, would be very limited. Once in a while, when I want to look at Poor's, I will go down to the Chicago office of the Poor Publishing Company to consult it.

Moody attempts to give quite a bit about some companies, and they give very little about others, because many companies probably won't supply much of the information that they want to have. I am not always able to ascertain from Moody's the relation of earnings to interest on a particular issue of bonds. In some cases we can, and in some cases we can't. It depends on the particular issue; it depends on how you define interest. If you mean nominal interest, you may get a better idea than you would on interest that includes amortization, and so on. I don't know whether others frequently consult these two manuals for those purposes or not. I consult them for whatever purpose I want to consult them for.

If I was interested in the relation of the earnings to the interest on a particular issue of bonds, I might consult Moody's to try and find out. If I thought I found out from that source, I would use it.

I was discussing open-end mortgage provisions in my testimony here. (Objection by Counsel for the Illinois Commerce Commission overruled.) I will try to explain what I mean by that. I don't want to be held to having made too technical or too legalistic definitions. I am trying to give a practical conception of what I mean by an open-end mortgage. And that might be subject to many additional qualifications and additional statements in case I were pressed as to why I didn't say this or didn't say that about it. Now, many of the mortgage securities presently outstanding are issued under mortgages that contain provisions whereby under the conditions set forth in the mortgage more securities of the same general character can be issued. It would permit the issuance of additional securities under the same mortgage, under the terms contained in the mortgage with

respect to the additional issue. I mean "conditions set forth in the mortgages" that the issuing company is not free to go out and choose the uses to which it would put the money raised through bonds issued in pursuance to those open-end provisions. (Objections by Counsel for the two Commissions overruled.) I don't know all the different conditions and terms they put in mortgages. They vary from mortgage to mortgage.

You ask if that restricted the uses to which the company might put the money if they want to raise the money through that mortgage. (Objection by Counsel for Illinois Commerce Commission overruled.) Those provisions are there for whatever purposes the language there indicates is involved, I suppose.

You ask whether there is a restriction on the company's use of money that can be raised through bonds that are issued under that open-end mortgage. (Objection by Counsel for Illinois Commerce Commission overruled.) I can only answer by saying that a mortgage indenture sets forth the rights and duties of the parties involved in the contract, whatever you want to call it. Yes, I think that is an answer to your question.

You again ask whether or not this expression "subject to the provisions contained in the Mortgage", to which I referred to a while ago, is a restriction that is put in the mortgage upon the use to which money raised through the issuance of bonds coming under that mortgage can be put.

(Objections by counsel for the two Commissions over-
1697 ruled.) As I conceive it, the mortgage indenture under which a security is issued is a document containing the rights and duties of the various parties to the contract. There are conditions. I am just refraining from characterizing the conditions, because I cannot do that. If bonds are issued under an existing mortgage they must be issued, unless there is some new agreement, according to the terms and provisions of the existing mortgage. Of course there are supplemental indentures from time to time.

You ask if I read the prospectuses of some of these companies. I did not read any of them from cover to cover, certainly. The principal thing I got from them was the amount of proceeds derived from the issue and the sinking fund provisions; that was the principal thing. As to the order in which I consulted various sources, I cannot say.

The order in which I listed them here is just the order in which I happened to think of them.

I think I said on direct testimony that I also sometimes consulted the bankers directly in an attempt to get additional information from registration statements.

You have exhibited a document to me. It looks familiar, yes, sir. I will compare this with my copy. I think your copy is the same as the one I have. It is a copy of the prospectus of the Arkansas Louisiana Gas Company.

You ask me to read Paragraph numbered 1, the "1" being in parantheses, on page 14 of that prospectus. It reads as follows:

"The aggregate principal amount of such additional bonds which may be so authenticated and delivered (other than bonds authenticated under the deposit of moneys as hereinafter set forth) and the aggregate amount of such deposited moneys which may be withdrawn shall not exceed an amount equal to the sum of $2,500,000 plus 66⅔ percent of the amount, if any, by which the cost or fair value, whichever in any instance is left, of property additions (consisting of additions to, or renewals and replacements of, properties useful in the transportation, distribution or sale of natural gas or in the manufacture, transportation, distribution or sale of manufactured gas, or additional properties useful for the foregoing purposes, but not including oil, gas or mineral leases or rights of royalties or oil or gas wells), subject to the lien of the Indenture, exceeds retirements of such property (as the term retirements is defined in the Indenture), for the period subsequent to July 1, 1936." (Motions to strike and objections to the whole line of testimony by counsel for the two commissioners denied and overruled.)

1698 I believe I have here a prospectus of Panhandle Eastern Pipeline Company. I have two of its prospectuses in my file, one of which seems to correspond to the document you have handed me. That is the prospectus relating to the issuance of $24,000,000 of the company's First Mortgage and First Lien Bonds, Series A, four per cent, due March 1, 1952, such prospectus carrying on its face a date of March 30, 1937. (Objection by Commission counsel overruled.) On page 15 of this prospectus, the paragraph before the last reads as follows:

"The term 'fixed property additions' will not include, among other things, (1) the first $4,000,000 in cost to the

Company and/or one or more qualified subsidiaries of fixed property additions purchased, constructed or otherwise acquired by the company or a qualified subsidiary subsequent to March 1, 1937, or (2) any gas production property, viz.: gas acreage, gas wells, gas or gas and oil leaseholds, and other works and properties used in or useful for the production of natural gas."

(At this point the Examiner directed the reporter to incorporate in the record from page 12 of the prospectus of Panhandle Eastern Pipeline Company the first paragraph under the title "Issuance of additional bonds" and the first sentence in the sub-paragraph below: "The Mortgage and Deed of Trust to be dated March 1, 1937, between City Bank Farmers Trust Company and James M. Kemper, Trustees (hereinafter in this prospectus referred to respectively as the 'Corporate Trustee' and the 'Individual Trustee'), securing the First Mortgage and First Lien Bonds Series A, will limit the issuance of Bonds thereunder to $35,000,000 principal amount of bonds, except as stated in Paragraph (III) on page 13 hereof. It will provide that First Mortgage and First Lien Bonds Series A, in the aggregate principal amount of Twenty-four Million Dollars ($24,000,000) shall be issued thereunder forthwith on the execution and delivery of the Mortgage and Deed of Trust. The balance of the Bonds issuable under the Mortgage and Deed of Trust, viz. $11,000,000 principal amount, may be issued thereunder from time to time in series (other than Series A) when and as determined by the Board of Directors of the Company, but only on the following terms and conditions:

(1) Additional bonds may be issued only in an aggregate principal amount not exceeding sixty per cent of the cost of fair value (whichever is less) of any unbonded fixed property additions of the Company or a qualified subsidiary.") (Objection by counsel for the two Commissions overruled.)

Returning to page 1 of Exhibit 181, I start with the Arkansas-Louisiana Gas Company. That company is engaged in producing, purchasing, transmitting, selling and distributing natural gas. I don't know whether these constitute all the phases of the natural gas business. You ask if that is a broader field than these two companies under consideration cover. As far as I know, the two companies under consideration have some production. They also purchase some

of their gas. They also transmit part of the gas. The question of distribution has been argued already. Yes, the major portion of the Arkansas-Louisiana Gas Company's revenue is obtained from direct distribution of natural gas to residential, commercial, industrial, and other customers in a few more than one hundred communities in the three states of Arkansas, Louisiana, and Texas. They also conduct some wholesale operations.

You ask if in that particular they resemble defendants.

I think both companies do some wholesale business.
1699 They both own production and both companies transmit gas. I don't know what other points of comparison might be involved. (Objection by counsel for Illinois Commerce Commission overruled.) You ask if the Arkansas-Louisiana Gas Company is not a network. They serve more than 100 communities in three states. They presumably have pipes running from place to place. It might be characterized as a network. I would have to check that geography before I can agree with you that they are located in northwestern Louisiana, southwestern Arkansas and northeastern Texas.

I don't know how many gas fields they produce from unless I have stated it here in this exhibit. I don't know anything more about the gas fields, that I can recall right now, than what I have stated here in the last sentence of the first paragraph of page 1, of Exhibit 181, in which I say the natural gas supply is obtained principally from fields located in Louisiana and Texas. I do not show the names of the fields from which the gas is obtained. I think the source of supply and the extent of the supply would be taken into consideration by the bankers who are floating the issue certainly, and presumably they would consider it in arriving at their terms. I mean the price which they paid, the terms at which they buy and at which they attempt to sell it.

You ask whether I was able to get those facts from the prospectus and why I did not include the information. I think one has to exercise some judgment. I stated on direct the purpose of these short summaries was not to make an exhaustive analysis but to bring some amount of orientation as to where the companies operate and what their operations are like. I could have copied the whole prospectus and so on but that is not very reasonable it seems to me.

You ask whether or not, in the light of my statement that

a banker would probably be interested in the source of supply and the extent of the supply in determining the terms under which he would be willing to buy the bonds and the price he would pay for them and for which he would offer to sell them, I would be handicapped in appraising the figures shown in the exhibit unless I have such information included along with the figures. You want to take in an awful lot of territory. I don't see how I can answer that question very well.

I have brought here figures showing the prices that were paid, the rate of interest that was charged, and other figures concerning several financial transactions of the Arkansas-Louisiana Gas Company. I have said the bankers would look into the source of supply and the extent of the supply of natural gas behind that natural gas system. They certainly would consider it. Beyond that, going to the weight or anything else, I can't tell you how their mind would work on that in relation to that. You ask if they were not considering that or giving those facts any weight, why did they take up their time with it. My thought as to that, whether they observe any weight, they don't know what it is in the first place and can't tell whether they are going to give any weight to it. Yes, I stated a while ago, it would probably have something to do with the amount they would be willing to pay for the issue under consideration.

You ask that if I bring in the figures without bringing in this one element that must be considered in arriving at what they are willing to pay does not render the picture incomplete. (Objection by Counsel for the Illinois Commerce Commission overruled.) That exhibit certainly is not complete as regards its containing all the information that is available with respect to these companies and the nature of their operations. You ask what else the banker would concern himself with besides the source of supply and the extent of the supply in connection with extending credit. That is a fairly long list. He would consider the whole picture of the company's operations, its contracts, its markets,
1700 the length of the pipeline from the source to the market. He would look at the adequacy and the reliability of the source of supply. In order to look at this information, he would have to look at the supply as it exists. (Objection by counsel for Illinois Commerce Commission overruled.) I think I said he would look at the company's whole operations. I am doing the best I can.

Cross-Examination by Mr. Slaff.

You ask if the bankers would not look at the indenture. They would probably have a great deal to do about the drawing up of the indenture. You ask if they would consider who the officers and the directors were before extending credit. Sometimes credits are extended upon the basis of personality as well as other things, if that is what you mean. I stated on direct that they would consider a vast wealth of material which I did not attempt or purport to set out in my Exhibit 181.

Cross-Examination by Mr. Morgan Resumed.

You ask if it is not necessary to have more than I have in this exhibit in order to properly appraise the figures which I have brought in here as indicating the cost of money. I don't know how far it is necessary to go with respect to this matter of forming judgments. Certainly, the ultimate facts are what they are. If you are going to make an exhaustive analysis why there was a slight differential between this and that you would never get through with your research in order to form a judgment. I have stated that there is a great deal in these prospectuses besides that which I have carried into this exhibit. You ask if the information carried in the prospectuses is of a character which must have taken a lot of time and involved a lot of expense to prepare. I have heard complaints to that effect.

You ask if it is not reasonable to say that that information was prepared and the time and money was utilized in preparing it because the investors who were considering the extension of the credit would require that information. I think it was prepared because the law and/or rules or regulations under which the SEC operates lay down those requirements. You ask whether the investment bankers would require that information. There were not any prospectuses like this before the SEC Act of 1933. The issuing companies did not give anything like that much information to the investor prior to that time. (Objection by Counsel for Illinois Commerce Commission overruled.) I said the investment bankers prior to the SEC did not hand out to the investors anything like the amount of information that is presently contained in the prospectuses.

At a matter of fact, I doubt if the investment bankers exercised the same diligence to inquire into the facts that they do now. (Objection by Commission Counsel overruled.) I don't know the facts. I am trying to give you the best sort of answer. I have a basis for an opinion. It is substantially true that at this time information as to the character of operations, as to whether the operations are integrated, as to the number of customers served directly, the source and extent of the supply, the distance of the field from the markets, the indicated life of the field, and a great many thing of that character is required by the investment bankers in connection with security issues at this time. The investment banker requires everything he thinks is pertinent in regard to the operations of the company. I could go over each one of these one by one, and perhaps on most of them I would agree that the bankers would check them up.

I have given the scope of my information as to the Arkansas-Louisiana Gas Company. I would not go so far as to say I did not read any other part of the prospectuses; I certainly have not taken the time to go over them in detail.

1701 You ask how the figures which I brought in here can be used in appraising the elements which enter into a proper rate of return for these two pipeline companies in the absence of the additional information. I assume what I am being asked concerns the thought processes of people in forming judgment; I think people must be assumed to be reasonable; and I assume, in forming a judgment, the whole history of our economic picture is one in which we have acted upon such knowledge as we have. And the thought I am trying to get at is this: The degree to which one goes in running down all the clues and bits of evidence in connection with a thing like this is a matter of judgment. I don't know how to go any further on it, because, after all, we talk about securities, and people have opinions about securities; but many of them have no idea of all of the details of operation of the companies whose securities they are talking about.

Redirect Examination by Mr. Booth.

You ask if I am showing the facts as to the bond yields of these various companies listed in the exhibit. I was trying to present a story here of what these companies have done and as I have said, for purposes of orientation,

I have brought in a little bit of description about the company. If I did not put that in I would have been asked why I did not.

Cross-Examination by Mr. Morgan Resumed.

I don't know to what extent the banker might have gone in comparing one company against another in forming their judgment on a given company.

You ask if the figures concerning the Arkansas-Louisiana Gas Company's financial operations are to be of service in this inquiry, it is going to be necessary to see whether those elements which were considered by the bankers in connection with that company obtain with reference to the two pipelines under consideration. I think I have answered a number of times, but I will try once more. It seems to me that the position is that these figures can't be even looked at unless it is shown that every thing, all the minute details with respect to the operations; that a comparison is made, checking one off against the other, to arrive at an opinion as to each little difference, and so on and so forth. If that is the criterion upon which this sort of material must be prepared, none of it could ever be prepared as a practical matter. Look at Dr. Dorau's exhibit. If that sort of analysis were even attempted there it would be an impossible job. We have got to be reasonable in these matters. That is all I mean to say.

You ask if the fact that the Arkansas-Louisiana Gas Company got money at the figures and on the terms shown in my exhibit 181 means that the defendants could get money on those terms. That doesn't follow as a matter of cause and effect.

Redirect Examination by Mr. Booth.

Yes, they might get it for less.

Cross-Examination by Mr. Morgan Resumed.

Certainly, in order to arrive at the cost to these two pipeline companies of raising their present capital by overall financing transactions, it would be necessary for these companies to present to their investment bankers or to others through whom they hope to obtain the funds, a full and complete statement of the nature and character of their operations. I think their judgment as to the market

price that might be obtained for that type of security would have some bearing or would be influenced in part by what they know about the market price of other issues.

1702 If they consulted the figures on the Arkansas-Louisiana Gas Company financing, I don't know the degree to which the investigation would go for the purpose of determining what was back of the figures for Arkansas-Louisiana Gas Company. Certainly, in 1936 and 1939 when the bankers undertook that financing, they must have made a study of that company. The degree and the details as to how much of a comparison between the Arkansas-Louisiana Gas Company and the defendants is a matter of judgment. How much further you can go on that, I don't know. The facts about one issue are not wholly unrelated to the facts as regard other issues in the market at a given time.

I think my statements with reference to the Arkansas-Louisiana Company would apply to each of the other companies in the exhibit, in reply to cross-examination concerning those other companies.

Cross-Examination by Mr. Slaff.

Similar questions affecting the figures applying to other companies would result in the same general character of answers. The summary statements about the other companies are of the same general tenor. I intended them to have, and they have, the same general purpose.

Redirect Examination by Mr. Booth.

I know that exhibits showing bond yields of public utility companies have been submitted in a number of cases. I know that that is done, but whether it is the ordinary thing to do, I don't know. You ask if I know of any case in which the complete history of the operations of each and every corporation which has issued securities included in the table of bond yields, has ever been submitted at the same time. I am not familiar with that end of it, no. I know that Mr. Gilman submitted an exhibit showing the bond yields of companies that he called natural gas companies.

Cross-Examination by Mr. Morgan (Resumed).

The Cities Service Company covers quite a bit of territory. I do not seem to have anything in here with respect to the source of supply. This company's financing was of

a private nature and I therefore had no prospectus on it. Whether or not I omitted to take that out of Moody's information as to the source of supply, I don't know. I would not object to putting in the information about the source of supply. I would be glad to look in Moody's and see if they show anything about it. I can't answer the question as to how many sources of supply it has. You ask if I do not know it is composed of a network of pipelines that are connected to each other in different places so that gas can be transported or transferred freely from one part of the system to another. I don't know the purpose except to get gas to customers. I assume in a system that goes among a number of different communities there might very well be a number of inter-connections for interchange purposes, but I don't know.

According to my exhibit, the company sells gas to local distributing companies operating in Kansas City, St. Joseph, Springfield, Independence, Sedalia, and Joplin in Missouri and Kansas City, Leavenworth, Atchison, Hutchison, Ottawa, Topeka and Wichita in Kansas and Bartlesville, Oklahoma.

You ask whether I know anything more about the facts concerning the El Paso Gas Company than is shown in this exhibit. I have the prospectus on El Paso. I don't recall but I probably looked at a little more than I have got in here, but I don't recall it from memory. I state that it produces gas in Lea County, New Mexico. I don't know whether Lea County is a very large county or not. I
1703 am not familiar with the geography down there. I do not know that that is a very large gas field. I don't know whether anybody else is taking gas out of that field except that company.

You ask which is more comparable to the defendants, the Lone Star Gas Company or the Lone Star Gas Corporation. My memory is that the Lone Star Gas Corporation is a holding company and I do not believe it has any direct operations of its own. I am speaking from memory. My recollection is that its subsidiaries participate in all of the four principal phases of the gas business, namely, production, purchasing, transmission, and distribution. I can't visualize Moody on this company's operations any too well, but I will say that it is disjointed, without attempting to disparage the company; as I recall, they have operations in Iowa and also quite a bit down in Texas, so the extent to which there is inter-connections in the system would be

limited more probably to their Texas operations, where, as far as I can remember there may well be inter-connections. I do not know that they own gas reserves in 39 different gas fields in the States of Texas and Oklahoma.

You ask what sources I have consulted concerning the operations of Northern Natural Gas Company. That came from Moody's I am pretty sure, because this is also what we term private financing, and we had no prospectus on it. You ask if I know in what fields it produces gas. It seems to me that comes either from the Hugoton Field in Kansas or the Panhandle Field in Texas, possibly from both. I am speaking now from memory. You ask if it doesn't take gas from both those fields and from the Otis Field in Kansas. I have some sort of recollection in regard to the Hugoton and Panhandle Fields. The Otis Field just doesn't click with me at the moment. I will be glad to check up on that if you want me to.

You ask whether my statistical study bears out the observation that in all of these bond transactions of natural gas companies where there is a reliance upon the production as a part of the resources behind the bond issue, the latest maturity of bonds included in the issue bears a date substantially short of the indicated life of the field. My exhibit does not give that information. (Objection by Counsel for Illinois Commerce Commission overruled.) If you mean studies outside this exhibit, I cannot say whether you are right or wrong. I have not made a study of that.

During the noon hour, I checked with our files the eight prospectuses which you handed me just before noon to see whether or not I had them in my files. I have checked them and I have them here. (Objection by Commission Counsel prospectus overruled.) From the prospectus of the Public Service Company of Colorado dealing with the bond issue in the amount of $40,000,000 of First Mortgage Bonds, 3¼ per cent Series, due 1964, dated November 27, 1939, I read at page 23 as follows:

"Property additions must consist of electric, gas or steam property located in Colorado, Wyoming, Nebraska, Kansas, Oklahoma, New Mexico, Arizona or Utah, acquired or constructed subsequent to November 30, 1939, but (among other things) shall not include any natural gas wells or natural gas leases or natural gas gathering and transmission lines or pipes or other works or property used in the production of natural gas or its gathering or transmission up to the

point of connection with any distribution system owned by the company, except any natural gas transmission line used for the transmission of natural gas for distribution by
the company when such natural gas transmission line
1704 connects any distribution system owned by the Company with a source of supply of natural gas (either gas wells or gathering lines or other transmission line) or when such natural gas transmission line connects two or more municipalities served or to be served with natural gas by the Company."

On page 16 of the prospectus of the Central Illinois Public Service Company $38,000,000 First Mortgage Bonds, Series A, 3¾ per cent, dated December 8, 1938, I see the caption "issuance of additional bonds." Under that caption, I see the following language: "Additional Series A Bonds or bonds of other series may be issued under the indenture without limitation as to principal amount, for any one or more of the following purposes, subject to the conditions and restrictions with respect to the authentication and delivery of bonds to be contained in the Indenture," then follows a colon and three paragraphs set out underneath.

On page 17, in sub-division 3 under that same sub-caption in the third paragraph the words "bondable property" are used. (Objection by Counsel for Illinois Commerce Commission overruled.)

I notice on page 16 in the third line of the last paragraph thereon the two words "bondable property" are in quotation marks, followed by the following words in parentheses "as defined in the Indenture." I would take it that refers to property that as defined in the indenture may be made subject to the terms and conditions of the indenture. It might refer to the original issue of bonds as well as the additional issue. The paragraph beginning with the words "bondable property" on page 17 reads as follows:

"'Bondable property' (as more fully defined in Section 3 of Article II of the Indenture) which may be used as the basis for the issuance of bonds will consist of additional permanent property constructed or acquired by the Company after December 1, 1938, and used or useful, in the electric, gas, or water business, except that bondable property shall not include oil or gas wells and leases, field gathering pipelines and natural gas transmission lines, other than lines interconnecting gas distribution systems." (Objections by counsel for the two commissions overruled.)

I have the prospectus here on Central Power and Light Company of August 17, 1939. I have not seen the mortgage indenture referred to in the prospectus. I have seen the indentures of none of these companies whose prospectus I have here. (Objection by Commission Counsel.)

On page 28 of the prospectus last mentioned, I see the caption "issuance of additional bonds." In the second paragraph, page 29, I see a sub-paragraph with the words "bondable property." The term "bondable property" has the same significance or meaning in this prospectus as it had in the one from which I just read. That short paragraph reads as follows:

"'Bondable property' (as more fully defined in Section 3 of Article II of the Indenture) will consist of additional property, plant or equipment constructed or acquired by the Company on or after August 1, 1939, and used or useful in its electric, gas or water business, except that bondable property shall not include, among other things, automotive transportation equipment, office furniture and equipment, oil or gas wells and leases, field gathering pipelines and gas transmission lines, other than lines interconnecting gas distribution systems."

On page 17 of the Kansas Power Company prospectus, issue of $5,000,000 First Mortgage Bonds Series A, 4 per cent, due in 1964, dated July 14, 1939, I see the caption "issuance of additional bonds". Under that caption on the following page, I see the first paragraph starts out with the words "bondable property". I think the term "bondable property" as used here has the same sig-
1705 nificance as in the last two from which I have read.

That would be on the basis of a certain amount, depending upon the original investment, less this composite accumulation up to that time. That paragraph under the caption "bondable property", page 18, reads as follows:

"'Bondable property' (as more fully defined in Section 3 of Article II of the Indenture) will consist of additional property, plant or equipment constructed or acquired by the Company on or after July 1, 1939, and used or useful in its electric, gas or water business, except that 'bondable property' shall not include, among other things, oil or gas wells and leases, field gathering pipelines and gas transmission lines, other than lines interconnecting gas distribution systems." (Motions to strike and objections by counsel for the two commissions denied and overruled.)

The prospectus of the Idaho Power Company at page 19,

contains the sub-caption "Issuance of Additional Bonds." In the sub-paragraphs below that I find a paragraph beginning with the term "property additions". I would expect that term "property additions" to refer to the property additions to be made as a result of the issuance of additional bonds. That short paragraph reads as follows:

"Property additions must consist of electric or gas property, or property used in connection therewith, but cannot include securities, materials and supplies, property used principally and primarily for the production or gathering of natural gas, or any power sites and uncompleted works under Idaho State Permits (see subdivision 'Stations Under Construction' under caption 'Property' herein). In determining net property additions, all retired funded property must be deducted from gross property additions except to the extent of certain credits with respect to funded property which has been released."

The prospectus of the Missouri Power and Light Company, dated December 15, 1936, on page 17 contains the sub-caption "Issuance of Additional Bonds" and on the next page 18 about three paragraphs down from the top, I find a paragraph beginning with the words "property additions" which term, functionally, means the same as in these preceding prospectuses from which I have just read. That paragraph reads as follows:

"'Property additions' consist of additional property acquired after November 30, 1936, located in the state of Missouri or in any other state, if connected with the properties in the state of Missouri, properly chargeable to fixed property accounts and useful in the electric, gas, heat and water businesses. Property additions, as defined, do not include good will, going value, franchises, contracts, securities, choses in action, oil or gas leases or wells, or any property of the nature excepted from the lien of the Mortgage as specified under caption 'Security for the First Mortgage Bonds.'" (Motion to strike and objections by Counsel for Illinois Commerce Commission denied and overruled.) At the top of Page 17 of the prospectus of Public Service Company of Oklahoma, dated February 18, 1936, I find the caption "Issuance of Additional Bonds." About two-thirds down the page, I find a paragraph beginning with the words "bondable property" which term has the same functional meaning as in these other prospectuses in which that term was used. That paragraph reads as follows:

"'Bondable Property' (as more fully defined in Section

3 of Article 2 of the Indenture) which property may be used as the basis for the issuance of bonds will consist of additional permanent property constructed or acquired by the company after January 1, 1936, and used or useful in its electric, gas and water business, except that bondable property shall not include oil or gas wells and leases, nor
1706 gathering pipelines and natural gas transmission lines, other than lines inter-connected with distribution systems." (Motion to strike by Counsel for Illinois Commerce Commission denied. Objection of Commission Counsel overruled.) On page 17 of the prospectus of the West Texas Utilities Company, dated June 6, 1939, I find the caption "Issuance of Additional Bonds." Near the bottom of the page, I find a short paragraph beginning with the words "bondable property" which latter term has the same functional meaning as in the other prospectuses from which I have read. That paragraph reads as follows:

"'Bondable Property' (as more fully defined in Section 3 of Article 2 of the Indenture) will consist of additional property, plant or equipment constructed or acquired by the company on or after May 1, 1939, and used or useful in its electric, gas, or water business, except that bondable property shall not include, among other things, automotive transportation equipment, office furniture and equipment, oil or gas wells and leases, nor gathering pipelines and gas transmission lines, other than lines inter-connecting gas distribution systems."

I have not read the other prospectuses in my office to determine whether or not restrictions or limitations of the same character are rather widely used in prospectuses. You ask whether or not I have found from my reading of prospectuses in the past dealing with the issuance of securities by electric light, gas and water utilities, and by integrated gas companies or other gas companies, it is a rather wide practice to include in the prospectuses reference to that character of restriction or limitation in the indenture. (Objections by counsel for the two commissions overruled.) I know from my study of prospectuses, or from my familiarity with them, that it is the customary practice to contain therein extracts or summaries of material that paraphrase the various terms and conditions that appear in the indenture under which the security is being issued.

You ask whether I find it a wide practice to impose restrictions in the indenture as reflected by the prospectuses which I have just read against the investment of funds to

be raised by the issuance of additional bonds under that mortgage in natural gas production facilities and natural gas transmission lines. I again state, as I stated before, that it is common practice in prospectuses to put in extracts, summaries or paraphrases of some of the principal terms and conditions contained in the indenture under which the bonds are issued. That which has been read in the record the last few minutes is prevalent in the mortgages, in the indenture, and I imagine it is extracted and summarized frequently in the prospectuses.

Redirect Examination by Mr. Booth.

I would not want to go so far as to say that the definition of the term "bondable property" which I have just read into the record is common in these prospectuses which I have read. It is common to show in there the definition of some of these terms; but as to certain types of mortgages, telephone company mortgages, they might not make any mention of gas wells. I made no study of how the term "bondable property" is defined public utility mortgages generally; in electric and gas company mortgages generally speaking.

Cross-Examination by Mr. Morgan (Resumed).

You ask if as a statistician I do not know that these restrictions are not put into these indentures by the company. (Objection by Commission Counsel overruled.)

The point is, I have heretofore testified that I cannot characterize the terms and conditions contained in the mortgage as constituting restrictions necessarily. I cannot answer that question without changing my testimony to that effect, it seems. They may be terms and conditions that are in there at the request or the suggestion of the underwriters or the bankers. (Objection by Commission Counsel overruled.)

You ask if that doesn't indicate to me as a student 1707 of finance that the bankers and underwriter are not willing to have the mortgage impaired by the addition of properties of that character read into the record from the prospectuses setting forth the restrictions. (Objections by counsel for the two commissions overruled.)

All I can say is that I know that the terms and condi-

tions are contained in the mortgage. Why the bankers might request them to be put in would depend upon the circumstances in each case, upon the legal problems involved too, because after all lawyers are the ones who draw up these mortgages. It might very well be a legal question. After all we are talking about mortgages here. The question is what can be put under a mortgage. There may be a legal requirement there. If I recall correctly, some of these referred to the exclusion of leases. I don't know, I am not a lawyer; but from what I do know, perhaps a lease or any similar right is not actual property, like property owned in fee, and can't be put under a mortgage. I think that is a matter of law and other things.

I haven't read the mortgage of the Texoma Natural Gas Company. You ask what purpose would be served by putting a restriction of that kind in a mortgage indenture. (Objections by counsel for the two commissions overruled.) I cannot recite these terms and conditions to which you have referred to as restrictions any more than I have already indicated.

Cross-Examination by Mr. Slaff.

With respect to the prospectus of Arkansas-Louisiana Gas Company about which counsel questioned me before noon, that document on page 6 contains this statement: "Ralph E. Davis, Inc., Engineers, have made a survey of the gas reserves of the company and have also surveyed reserves of others considered by such engineers to be available to the company. The letter addressed to the company summarizing the results of this survey is quoted below." Below that on page 6, and continuing on page 7 on through to page 8, is quoted a letter from Ralph E. Davis, Inc., Engineers, Pittsburgh, Pennsylvania, directed to the board of directors of Arkansas-Louisiana Gas Company and signed "Ralph E. Davis, Inc., Engineers, by Lyon F. Terry, vice-president," which contains a discussion of the gas reserves available to this company.

Cross-Examination by Mr. Morgan Resumed.

You asked me to look during the noon hour and see whether or not Northern Natural was taking gas from any other field than the Panhandle field and the Hugoton field. I have before me copy of Exhibit 162 which contains the

statement: "The company's gas supply is obtained principally from the Panhandle field in Texas and the Hugoton and Otis fields of Kansas, as follows:" Then it sets forth the amounts received from the three fields specified and from other fields. They run, roughly, for the year 1938, 22,000,000 M.C.F. from Panhandle; 13,500,000 M.C.F. from Hugoton; 3,000,000 M.C.F. from Otis; and about a million M.C.F from other fields.

In my direct testimony, I testified concerning some assumptions given me at the time and shown at the top of page 7800 of the record. I did that arithmetic as the result of a line of thought that I embarked upon reading the testimony of Mr. Delafield with respect to the inclusion in his eight per cent rate of return figure of 5¼ per cent for risk premium. I turned the matter over in my mind and wondered just what that might mean in the way of arithmetic. You ask if it was my thought at the time I did that arithmetic that part of the risk premium ought to be treated as an accumulation for the purpose of amortizing the investment. I don't treat this as an amortization of investment.

1708 I have added together the amount of the risk premium and the amortization percentage to get a total percentage. You ask if I reached the conclusion that the investment would be amortized in eight and a half or nine years. I did not look at it in that way at all. You ask what use I expect that eight and a half or nine years to serve here. I think it is an attempt to measure the effect of the risk premium of 5¼ per cent, or any other percentage, as far as that goes, as an offset to possible capital loss. I don't think that is treating the risk premium as a part of the amortization of the capital. I am not sure that I know how that circumstance would affect the proper rate of return. (Objection by Counsel for Illinois Commerce Commission overruled.) I was trying to appraise that figure of 5¼ per cent in arithmetical terms, in the sense that I was trying to find out that if he considered that factor together with the amortization, in how many years would it take the two together to amount to the original sum.

You ask why I added that to the amortization reserve unless I was going to use it as a part of the means of returning the capital investment to the company. I think you might consider the risk premium as being an offset to capital loss. If it is supposed to compensate for capital loss, then you might take it as a measure to offset it. It is a

pretty difficult thing to express in words, but I think that is the general idea I had in mind. I don't mean capital loss depletion. I mean actual loss of investment. I do not think that the thought occurred to me at the time that there should be no compensation for risk after eight and a half years. I do not recall. (Objection by Counsel for Illinois Commerce Commission overruled.) You ask again why I figured out how long it would take the two accumulations together to accrue the amount of the investment. I am going on the testimony given by others, or it is my impression that your witnesses indicated that this was a risk premium, and it might compensate for the possibility of loss, or compensate for risk, in other words. It was not on the theory also that as soon as the risk premium, together with the amortization, would accrue an amount equal to the capital investment that there should not be any further allowances for risk premium. (Objection by Counsel for Illinois Commerce Commission overruled.) You ask what I mean by amortization. (Objections by counsel for the two commissions overruled.) It is my understanding of accounting that amortization of properties and depreciation of properties is one of the costs of doing business that should be provided for and set up on the books of any company. It serves to recover the capital cost of the property consumed in the rendition of service. I am not saying that this gives you the time at which the capital cost is returned. You ask if I think that any part of the rate of return should be applied as return of the capital. (Objections by counsel for the two commissions overruled.) Certainly, from an accounting point of view, at least, I would not treat the rate of return as representing a return of the capital.

I have said that I made that calculation in an attempt to appraise risk premium. Now, I will try to carry that a little further. If you conceive that the investor asks a risk premium because he is afraid that he may not get some of his capital back, then you could consider the risk premium as an offset to the loss of capital, and you have got to take the two things into account in order to try to measure his net gain or loss. I do not mean net risk over a period of time.

1709 You ask if I mean, as the years go by, between now and the end of 1954, that for every year that passes the risk is reduced because defendants have had the risk premium in the years that have passed. (Objection by

Counsel for Illinois Commerce Commission overruled.) Not precisely. Let me see if I can make some other sort of an illustration. If we assume an investor starts out today with an investment of $1,000,000 and has to be paid back $100,000 of it each year for 10 years, then each year as he gets back part of it, the amount of the investment that he has at risk is reduced. It doesn't mean the amount of risk on the remaining investment is reduced at all. It might be reduced, or increased, or might stay the same. I just said the risk on the remaining unpaid amount may be the same, more or less. That doesn't reduce the risk he still has at stake.

Yes, I have stated that the full amount of the capital invested would be accumulated at the end of eight and a half or nine years by adding the amount set aside for the amortization to the amount represented each year or from year to year by risk premium. No, I don't think it follows that an adjustment should be made at the end of eight and a half or nine years in the compensation for risk if the risk remains the same at that time. I have tried to say the rate of risk might go up or down ten years from now or eight and a half or nine years whatever it is. That is, the investment may be more risky then than it is today. The risk as of that time would have to be appraised and the fact of this accumulation would not be given weight as regards the amount then invested in the properties.

Questions Interposed by the Examiner.

You ask if the amount that would be then invested in the property subject to risk premium should be the total amount invested less this composite accumulation. No, it would be only less the amount that had been returned through operating expenses, something of that nature. I wouldn't deduct the risk premium from the investment in order to find the investment. I think the thought I had in mind is, it would be applied not to the investment the investor would have in the company but to a calculation of the net loss or gain that the investor may incur. That would be on the basis of a certain amount, depending upon the original investment, less this composite accumulation up to that time, from the investor's point of view.

Cross-Examination by Mr. Morgan (Resumed).

That would amount to all of the original investment at the end of eight and a half or nine years. No, I am not saying there would not be anything for him to earn on. I mean there is still something there to earn on. (Objections by Counsel for Illinois Commerce Commission overruled.) I think the confusion here is in confusing two different things. I am talking in this calculation about the investor. I am not talking about the rate base or fair value, whatever you want to call it.

You state that you are trying to find out what is going to result at the end of eight and a half or nine years because I have taken the risk premium and accumulated it, either in a straight line or charging interest on it so as to help make up the total capital investment at the end of that time, assuming the risks are the same on whatever rate base is proper. I didn't have that in mind. This goes to risk premium, not rate of return over-all, but merely the risk premium to the investor as such. You ask whether it would change the amount that ought to be allowed for risk premium for whatever risk turned out to exist as of that time because that accumulation had been made as a matter of arithmetic. I am not clear. I didn't tie it up that way in my own mind. I am not clear on this point.

Redirect Examination by Mr. Booth.

I would not know what the rate of return would be eight and a half years or nine years from now as affected by this calculation.

1710 *Cross-Examination by Mr. Morgan (Resumed).*

You ask me to assume that all the conditions are exactly the same when this accrual has been accomplished at the end of eight and a half or nine years and that the risks are the same, and then ask whether or not there would be any change in the risk premium at that time because of having used the risk premium to help accrue the amount of the capital investment. I think I expressed that as far as I am concerned, as far as I am thinking on it, it would not change the risk. The risk premium might change. It would not change because of the arithmetical calculation, because

the changes that come about in time have a given degree of risk. The amount of compensation demanded at one time might be different from that demanded at another for the same degree of risk. I don't know how that sort of thing might work. I don't want to get involved in it.

I do not think the risk would be more or less because of that accumulation. I did not have that in mind. It seems to me the amount of risk that might exist at that time would have to be considered then as the conditions then existing might require. I do not know that I said that this accumulation of risk premium and the interest on the risk premium if I used the sinking fund method should not have anything to do with the amortization allowance. I said I did not consider the risk premium as consisting in amortization.

You ask if in computing the amount of accruals for return the return of the capital invested, I would consider the risk premiums or any accruals to risk premiums as reducing that amount. I may be placing the incorrect interpretation upon your question. If I understand it, my answer is, it is not my thought this accumulation of the two funds together is intended to affect the rate base or the amount allowed for amortization. (Objections by counsel for the two commissions overruled.) It is not intended to affect the amount of the risk premium; but it is intended as an attempt to appraise that risk premium. I tried to give two or three examples of what I had in mind.

You ask me to assume a riveter who works on a steel construction at riveting; that his scale of wages for riveting work in the shop is $10 a day; that if he be working on a building where he goes out on the end of a steel beam eighteen or twenty stories from the ground, that by reason of the risk involved in his position, the scale of pay is $20 a day, that he goes up there and works every day for six months without falling off and killing himself, you ask if that circumstance would affect the risk of going up the next day in the least. I don't think so, and I don't think it should change the scale of his wages.

You ask again why this calculation is in the record in the light of my last two answers, and you ask what I mean by "appraising the risk premium" in my former answers. I am trying to find out what the investor's net loss or gain might be as a result of this risk premium. Obviously, if he receives one risk premium his net loss or gain is different than if he receives another risk premium. I have tried to

illustrate that by the example of taking the million dollars today and taking back so much of it over a period of years.

Let's see if we can illustrate that in this fashion by something in the bond field. If an investor paid $110 for a bond today and if it were a 5 per cent bond, and if a year from now he sold the bond or if it were recalled at 105, then his gain would be zero. You ask if I think that is what this testimony and this accrual demonstrates. (Objections by counsel for the two commissions overruled.) I don't understand the antecedent of the word "that" that is
1711 used here. I don't just connect it up with this risk premium eight and a half to nine years from now. I am not clear on that. I stated in my direct, or in answer to a question you put to me at that time, that I did not do anything about this but the arithmetic. Yes, I did state this afternoon that this represents my conception after I read Mr. Delafield's testimony. I thought it had something to with the interpretation of this risk premium, yes. I have tried to make clear what I have in mind. As I said before, I am trying to show, or trying to measure it from the investor's point of view. It does not go to the matter of the company's aspect of the problem, as I see it.

I don't know what weight is to be given to it or what argument is going to be made from it. I say that this risk premium was intended to protect investors. (Objections by counsel for the two commissions overruled.) It is an investor's requirement. I don't know how you would go from that to rate of return on fair value. That is, what use one might make of the evidence as to risk premium demanded by investors, coupled with rate of return. I am not entirely clear as how you would take that step.

It is my impression that the rate of return is based on the rate base in rate cases. In using $1,000,000 here, I have not necessarily assumed $1,000,000 rate base. You ask what this $1,000,000 is. I think we went into this shortly after I gave my direct testimony. My purpose here is to do some arithmetic and if you are going to do arithmetic, you have to do it with figures, and the matter of the labels you put on them is really not part of the arithmetic, as I see it, necessarily. This $1,000,000 is merely an original sum I have called the "net investment."

Questions Interposed by the Examiner.

I say here in the title "When a return of 8 per cent is allowed on the total investment, "which is $1,000,000. That is not necessarily stated for the purposes of this illustration as a rate base. To be right honest about it, I have tried to use language here which would avoid argument about what the rate base is. My interest here is in the mathematical process. If you are going to argue about those words, you just cloud the issue, it seems to me. The $1,000,000 is the thing on which the return is allowed for the purposes of this calculation.

Cross-Examination by Mr. Morgan (Resumed).

I intended to show here if we have a million dollars and paid it off at the rate of $100,000 a year and also paid $80,000 a year of so-called return, that the results would be to really pay more than 8 per cent on the net investment, the sum. By net investment, I mean the amount that I started out with, less accrued amortization. In other words, I treated the reserve as a measure of the annual payment. I attempted to explain at the last session when I gave this testimony that the way I have used "reserves" might not coincide precisely with the way accountants use it in accounting statements. I can find that if you want.

You ask if this part of Exhibit 182 is offered on the theory that the rate of return at the present time should be influenced by what is going to happen in the future with reference to accruals for amortization. In any rate case, as I understand it, estimates are made as regards depreciation, how much it is going to be, the method used, and so on and so forth. I can't go beyond that.

1712 Yes, if 8 per cent is a proper return then 8 per cent is a proper return, notwithstanding column H to page 1 of Exhibit 182. You ask whether or not column H on page 1 of Exhibit 182 is intended to show what amount should be set up as an accrual for amortization. I don't understand what you mean; but I would like to emphasize that this exhibit here is something which I am very much interested in and which I am going to submit to a magazine for publication if they will accept it, provided, of course, something is not developed here which shows I am wrong. In that event, of course, I would not publish it.

It is merely a mathematical analysis of what is involved in that rate-making formula. I have already said that if 8 per cent is the proper return that it is the proper return notwithstanding this calculation here—and notwithstanding anything else, too. I don't think that this exhibit was intended to deal with rate of return. I am trying to illustrate here, considering all the three pages of the exhibit together, the mathematical assumptions upon which the matter of amortizing something on a sinking fund basis, together with a return on the total amount, are predicated.

Page 1 cannot be taken or considered without relation to the other pages. (Objection by Commission Counsel overruled.) The exhibit is integrated. On page 1 the annual allowance for amortization, as I have used the term here, is set up on a straight line basis. On page 2 it is set up on a sinking fund basis, using a 2 per cent rate of interest in the sinking fund. Page 3 corresponds to page 2, except that 8 per cent has been used for the sinking fund rather than 2 per cent.

Questions by the Examiner.

I arrive at column J on page 3 subtracting column C from column I. That produces a stabilized rate of return of 8 per cent in column K.

Cross-Examination by Mr. Morgan (Resumed).

You ask if the use of the sinking fund method of computation for accumulating an amortization reserve is based on the idea of an undepreciated rate base. (Objection by Commission Counsel overruled.) If I understand the question clearly, it has been my conception that when the amortization allowance that is to be put into operating expense is determined as a sinking fund annuity, then the rate of return is applied to a sum that does not provide for the deduction for amortization accrual. The purpose of this exhibit is to illustrate the mathematics of that procedure.

The figures shown in column K on page 2 are obtained by dividing column J by column G. You ask if I have not deducted the amount of the accrual every year in arriving at the 12.59 per cent return shown in column K. I have deducted the amount of the interest accrual from the return on the full investment without deductions for amortization reserves in arriving at column J; but in order to get

to column J I first allowed the full 8 per cent every year on the original amount without deduction for reserve that I show to accumulate here. No, I do not allow it and then take it away. For the purpose of demonstrating the mathematical principle here I make the deduction, certainly. When the accrual is by the sinking fund method I don't do that.

1713 (December 5, 1939.)

You ask if, under the rate making procedure as I understand it, it is not true that the practice has been where a straight line method of accumulation or amortization reserve has been used that the rate base fixed as of the time of the hearing remains the rate base until the regulatory body takes another look at it. (Objection by Commission Counsel overruled.) My conception is that the rate base determined as of any instant of time in any rate proceeding is merely one of the facts arrived at or one of the tools arrived at to assist the Commission in fixing rates as of that point of time. Now, when you project into the future you don't have the same problem before you. I mean rates are not determined over and over again each second or each minute. They are determined once and for the purpose of this instantaneous determination certain conclusions are arrived at, but those bases might change in the future. I think the facts might change is what I am trying to say. They do change. There is no determination of rate base except as to the instant of time, at whatever time the Commission sets forth in its order.

You ask if the fact that there was an allowance in the earnings of an annual amount to accrue for the purpose of retiring the capital or returning the capital, as the case may be, raised the question as to whether or not that accrual could not be put to use and thus be made to earn a part of the total amount of the capital to be returned; and if that is not what gave rise to this sinking fund idea of accruing that reserve. (Objection by Commission Counsel overruled.) My thoughts are not clear as to this matter of earnings including something for capital. As far as that goes I have not had opportunity to make a search to see if there is anywhere anything set forth as to how this thing did arise.

My testimony in Exhibit 182 is intended to demonstrate mathematically what is inherent in my opinion in this rate

making formula that is under discussion here. I have set up here in column B on page 1 of Exhibit 182, $100,000 a year. At the end of ten years that amount accrues the whole million dollars that I started out with. You ask if the sinking fund idea does not proceed on the basis that the $100,000 a year, while it is a book entry so far as the books are concerned, in fact represents a part of the total amount received by the company from the rate payer, and the company ought to contribute the amount of the earnings on that $100,000 to the return of the capital in making up that one million dollars. I am not clear. The $100,000 a year representing accumulation of capital. That is what I am making out of it.

You ask the difference between the straight line basis and the sinking fund basis. The difference is the amount allowed under the sinking fund basis when projected over the period upon which the amount was determined does not accumulate to the full amount that was being amortized.

On page 2 I set up $91,327 a year instead of $100,000. I find at the end of ten years it only aggregates $913,270. That doesn't return the million dollars and that is not a true amortization as I conceive it for the purposes of this calculation. This calculation is in two parts.
1714 The two parts are inter-related. That is the whole burden of my testimony, that they are inter-related, and that is why they are applied in the way they are applied. The Examiner points out that on a basis of $91,327 I come out with only $913,270 at the end of the ten years and asks where I get the rest. The rest of it is in two places. As a matter of arithmetic the figures in column C added to the figures in column B give the total. Also the difference between columns I and J, when added to the amounts in column B, give the total. The sum set up in column C represents the accruals of compound interest, figuring at 2 per cent on the $91,327 for the first year, that is, the three columns, B, C and D are a compound interest calculation, using on page 2 a rate of 2 per cent for the purposes of this exhibit.

I have not assumed for the purposes of this exhibit that the 2 per cent is the risk-free rate and that 8 per cent used on the following page is the rate including the risk compensation. (Objection by Commission Counsel overruled.) You ask why I use the 2 and 8. I use those

rates to illustrate some arithmetic. You ask whether I did not know that one of your witnesses had testified that for a sinking fund the 2 per cent was a safe rate for the risk-free compensation. I don't see that it makes any difference. That is not the point at all. It had no bearing upon the calculation at all. You ask why I picked out 2 and 8, 2 being the rate that Mr. Delafield said ought to be used and 8 being the lowest rate that your witnesses have said ought to be the proper rate of return in this case. I see now what you mean. I might have known that some one testified to the 2 per cent and I did know there was testimony on 8 per cent rate of return. I merely wanted to get figures that were not too far afield from some of the ideas presented in this case.

This $1,826 set up in the second line of column C, page 2, is 2 per cent on $91,327. I have used an annual basis of accrual. The next year I accumulated in column C $3,689. That is a little more than twice $1,826, due to the circumstance that the interest is compounded in this calculation. By going through that compound interest calculation from year to year I accumulated in column C $86,730 and that amount added to the $913,270 makes up the million that I started out with. It takes the amount of that interest accrual in column C as a matter of arithmetic to add up to the million dollars. My testimony here is intended to explain that that is included, of course, somewhere else; but you have not allowed me to explain the two points of the problem.

You ask if in fixing the $91,327 a year, the annual amount to accrue in connection with the return of the capital, I have deducted from the million dollars, before dividing by ten, the number of years over which I am going to accumulate the fund, just the amount of that accrued interest. I didn't arrive at any such process as that. As I say here in a footnote, $91,327 set aside at the end of each year for ten years, compounded at 2 per cent, will equal a million dollars at the end of the tenth year. You ask if I did not arrive at that by accruing the interest and deducting the accumulated interest from the total amount to be returned and dividing by ten. You are getting over into the second part. If you want to discuss the two parts I am perfectly willing to do that; but I do not see what you say follows necessarily.

1715 I am not clear on that. You ask if I do not see that

the amount $91,327 set up every year is absolutely fixed by the accrual of that interest there in column C. The amount in column B is fixed by three factors: Rate of interest is one factor; the time is the second factor; the amount being amortized is the third factor. By applying these three factors we get $913,270 to be amortized through actual accruals, not including interest. I do not get $91,327 by dividing $913,270 by ten. I get the $913,270 by adding the ten figures in the column above it.

You ask how I knew how to start out with $913,270. By reference to the standard interest annuity tables is the answer. I don't think that that is just working backwards and doing the very thing you asked me in the question before the last. The end result may be the same, but that is not the way I arrive at that. It is true that after I arrive at it the amount is less than a million dollars. If it is less than a million dollars I must add something to it to make it a million dollars. The point I am making is that in setting up this annual accrual of $91,327 I have set up accruals which return less than the amount of the capital if I consider those figures alone. That is one phase of this method and in order to understand it you have got to relate it to the other phase. When you are ready to consider that I will discuss it.

In my testimony yesterday in which I stated that the practice is that when the sinking fund method is used in accruing the amortization reserve, the rate of return allowance continues to be based on the amount I started out with. If I said that I misspoke myself. You point out that I said: "If I understand it clearly, it has been my conception that when the amortization allowance that is to be put into operating expense is determined as a sinking fund annuity, then the rate of return is applied to a sum that does not provide for the deduction for amortization accrual."

The confusion there is that I am talking about a rate-making formula that is applied as of an instant and time. It is not a projection into the future. The purpose is to fix rates today on the basis of the facts before the deliberating body today, and just as a mere matter of the mechanics of the thing they take today's figures and the so-called amount of amortization is figured as being one thing. The amount of return or the so-called return is fixed on another basis. Now, neither the amount then

determined as the amortization is the true amortization, and the amount then determined as the amount of the return is not the true return. Neither one of them stands alone. Throwing them together they can be justified, and that is why they are thrown together. That is why one is paired against the other.

Now, my mathematics is intended to demonstrate that the throwing together does result in an equitable justification of the two independent processes when, but only when, on the basis of mathematical principles the interest rate percentage used to fix the amortization and the rate of return percentage are the same. That is inherent in the mathematics of combining these two related factors and arriving at an overall equitable result.

If I did not tell you what I have just said yesterday I misunderstood your question. You ask if there was
1716 anything about the question, "The use of the sinking fund method of computation for accumulating an amortization reserve is based on the idea of an undepreciated rate base, isn't it?" that I did not understand. I think I was interpreting differently than you were. You say the idea of an undepreciated rate base. What I am talking about here are concepts used as of a given particular time to arrive at the result as of that time. Now, you cannot go beyond that for the purpose of this mathematics.

You ask me if at the end of the third year another look were taken at the situation presented by page 2 of my exhibit here, although the sinking fund would have been applied in accruing the return of that million dollars, if the amount on which the rate of return would be calculated in the light of my statement yesterday would still be one million dollars. I do not think so. You ask what I meant then when I told you yesterday that when the amortization allowance that is to be put into the operating expense is determined as a sinking fund annuity, the rate of return is applied to a sum that does not provide for the deduction for amortization accrual. I think the difficulty there arises that your last question has shifted the base, and when you shift you have got to get all your terms uniform. Now, if I start out today with certain assumptions I project those all the way through the period. Now, if you come down here three years later and start out with a different figure and reproject your

sums over some other period, that involves another calculation. The arithmetic of a sinking fund method is that some additional sums are involved in addition to the so-called annuity.

Questions by the Examiner.

As I understand it, the amortization annuity, considering it as a sinking fund annuity, is determined as the sum required to accumulate with interest over the period to the amount being amortized; and when the rate determination is made that is a mechanism used to determine what as of that point and time is a reasonable estimate of the amortization factor to be added to the other costs in order to arrive at the total amount of revenue required by the company, and in order to fix rates to produce that amount of revenue. You ask how my last answer differs from the answer to Mr. Morgan's question. (Objection by Commission Counsel overruled.) The point is Mr. Morgan used the expression "capable of earning." The capacity of this thing to earn is not involved in the fairness of the process and I have attempted here to demonstrate why, because allowance for it is made somewhere else.

Cross-Examination by Mr. Morgan Resumed.

You ask what has been done in the development of this sinking fund principle to the end that you can see how what I have done differs from it. I don't know what regulatory commissions have actually had in their mind when they fixed sinking fund depreciation. I cannot tell whether what I have done is something different from that which has been done because I do not know what has been done. You ask why I am preparing this study with a view of having it published as something original if I think there is any doubt about it being distinguishable from that which has been done in the past. I am doing so because I am attempting to analyze the principles here.

I had in mind a while ago that you asked me what
1717 the reasons were that others had in mind when they did this sort of thing. I do not know what they had in mind. I am pretty sure that the mathematical process has been applied and my purpose is to demonstrate that unless these two percentages are the same the process

is being applied along lines different from the principles in the mathematics.

Redirect Examination by Mr. Booth.

I have not felt it necessary to make an historical study for the development of the sinking fund method and its use in rate proceedings in connection with the preparation of this exhibit. I have not made such a study.

Cross-Examination by Mr. Morgan Resumed.

Passing over to Table 2 on the right hand side of the exhibit I have set up there in column 1 $80,000 per year, which is 8 per cent, the assumed rate of return, on the entire one million that I started out with. That adds up to $800,000. Over in the next column, which is column J, in the second line I have deducted from that $80,000 exactly $1,826. In the next line, I have deducted from $80,000 exactly $3,689. When I get through with column J I have deducted from the $800,000 exactly $86,730. When I set up the $91,327 annually the payments alone at the end of ten years accrue only $913,270, but of course, the accrual involves the interest too. No, I have not deducted from the million dollars. I started out with this $86,730 and arrived at the result of $913,270 in that fashion. Yes, I started out with the theory that the million dollars was to be returned to the investor and the additional theory that the investor would get the rate of return on the million dollars or such parts thereof as have not been returned from time to time. Yes, you are right that I did not accumulate in my annual accruals enough money to return the million dollars by exactly the sum of $86,730, without taking into account the interest. The amounts that I show in column B here are less than one million dollars by the amounts that are shown in column C. I did not arrive at my result by deducting from the total amount set aside in the form of annual accruals the amount shown at the bottom of column C.

You ask if when I get over here to column J, notwithstanding my statement yesterday afternoon, I have not deducted from the total amount set aside in the form of annual accruals the amount shown at the bottom of col-

umn C. (Objection by Commission Counsel to the form of the question overruled.) That goes to the statement that I made yesterday which I have already explained this morning, that it apparently did not convey the idea I had in mind. I have attempted here this morning to elaborate on what I did have in mind. It seems perfectly clear to me. I have indicated here that I don't think I can answer the question in the form you have asked it. As indicated here on the exhibit, in order to arrive at column J, and for the purpose of the computation, I deducted from $80,000 in the years after the first year the amounts shown in column C and those are the interest accruals inherent in the sinking fund determination of amortization.

You ask if the sum total of it is not that when I get through I reduce the $1,000,000 to be returned by that $86,730 and I reduce the amount allowed as earnings by just exactly that amount in my column J over there. No, the sum total of it is that I have returned all of the original investment and in addition paid an average of 12.59 per cent there instead of 8 per cent which was the assumed percentage in the first place. That is 12.59 per cent on the net investment.

Questions by the Examiner.

1718 The difficulty goes to the fact that apparently what I said yesterday was not clear; and I have attempted to clarify it this morning. Therefore I can't answer on a different construction from what I said yesterday as to the thing I had in mind. The difficulty, you see, is we are shifting bases here, Mr. Examiner.

You ask if I can't answer it by relating it to my answers of yesterday and clarifying it again. I thought I clarified it once. The thing I had in mind in my answer yesterday at page 9233 of the record was that the mere mechanical process was gone through at the time of the determination of a particular set of rates in any rate procedure. Now, I projected that into the future to see its effects and that is what I am trying to do here; but the bases may change in that projection. They do change in my opinion.

Cross-Examination by Mr. Morgan Resumed.

You ask if the rate shown in column I isn't exactly 8 per cent if I use in this computation the undepreciated rate base or the undepreciated amount of $1,000,000 with which I started out. I apply 8 per cent to the original million dollars to get this $80,000 as so-called return; and my testimony is that it is not true return over the period. It happens to be, as a matter of arithmetic, the return in the first year, but the arithmetic, carrying it on, attempts to analyze what this $80,000 does mean, and what the amortization annuity does mean, because those are parts of a whole. This relates back to another problem in simple annuity calculations in which the two things are treated as a whole. Here they split up differently from the division made in the ordinary annuity problem; and that is where a lot of confusion arises.

I have used what purports to be the sinking fund method, although in Table 2 I purposely, in order to illustrate the thing, applied the principles erroneously and in Table 3 I come to my interpretation of the correct application. As a matter of arithmetic I applied the sinking fund method of computing the amortization reserve first on 2 per cent in Table 2 and on 8 per cent compound interest bases in Table 3. (The witness begins to answer a question which the Examiner allowed company counsel to withdraw over objections of Counsel for the Illinois Commerce Commission.)

In making the observation as to the figures shown in column K, Table 2, that it winds up with an earning of 12.59 per cent as appears right here in the exhibit, that amount is obtained by dividing the figure in column J by that in column G. You ask if G is the depreciated rate base from the first year throughout the ten-year period. Not necessarily. That is not the way to look at it. That is not the way I am looking at it.

You ask how I got this $908,672 on line 1, column H. This was intended to be column G less column F, but there seems to have been a rounding off of a dollar there. It does not click exactly.

You ask if this 12.59 per cent is not 12.59 per cent on the depreciated rate base. I am not using rate base in this exhibit. It does not appear in this exhibit. You ask if it isn't the earning on the million dollars depreciated

annually by the amount of this accrual over there. It says so right here; yes, certainly, that is the average over the period, the average rate of return on the net investment.

1719 You ask what my understanding is of the procedure sometimes used in rate making whereby the rate of return is applied to an undepreciated rate base and the annual depreciation expense determined on the sinking fund basis. My understanding is that for the purpose of that particular determination at that point in time, two different computations are made in order to arrive at an overall whole. You ask if my counsel did not ask me, as appears at page 7808 of the record, this question: "Are you familiar with the procedure sometimes used in rate making, whereby the rate of return is applied to an undepreciated rate base and the annual depreciation expense determined on a sinking fund basis?" to which I answered: "Yes, I am"; and if my counsel did not then ask me the question: "What is your understanding of that method of procedure?" and if I did not answer: "As I understand it, when the annual allowance for depreciation expense or amortization is determined on a sinking fund basis the rate of return is applied to an undepreciated rate base in order to ascertain the amount of the return." Yes, I so testified. You ask if I have done that in arriving at the figures shown in column K of the exhibit we have been discussing. As I understand it, I used that process to arrive at these figures and then I have carried them on to column K and analyzed it.

Questions by the Examiner.

You ask what I mean by that process. At page 7808 of the record, line 13, I started with my conception of that procedure and having obtained those instantaneous values or sums resulting from that procedure, I proceeded to project and analyze those sums. That is the basic underlying principle by which I arrived at the initial sums with which I started and then I am continuing it to analyze those. I said here on direct that "When the annual allowance for depreciation expense or amortization is determined on a sinking fund basis the rate of return is applied to an undepreciated rate base in order to ascertain the amount of the return." Now, I determined with respect to a million dollars as a starting sum the two factors men-

tioned there in just that manner, if I understand the matter, and then in this exhibit I have proceeded to continue those things on and try to analyze their significance in relation to the basic principle of rate making.

Cross-Examination by Mr. Morgan Resumed.

You ask if I had stopped with columns A, B, C, and through to I, inclusive, my exhibit would not have been in conformity with the procedure I described at pages 7808 and 9233 of the record. (Objection by Commission Counsel overruled.) Your question involves so much I don't know where to stop on the thing. It involves an entire re-explanation of the whole process. (Objection by Counsel for Illinois Commerce Commission overruled.) I think here even in columns A to I, inclusive, I go beyond the instantaneous principle and analyze it over a period of time. You ask if I do not go beyond the procedure which has been followed in the sinking fund method of accruing amortization reserve as this exhibit has been carried out. I don't go beyond the procedure in order to arrive at my starting sums. Then I go ahead and analyze those. Those two columns, J & K, are a part of my analysis of the procedure as I understand it and I can't segregate these things out to that extent.

1720 Table III is also a sinking fund computation as far as the determination of the annual allowance for the amortization on an 8 per cent sinking fund basis is concerned. You ask if it differs in that I use an 8 per cent interest rate for figuring compound interest in order to arrive at the amount to be set aside in column B each year. I don't think that is the correct statement of the procedure. I use 8 per cent not to figure the compound interest that results from it; but I use the 8 per cent as the basic factor in determining how much the amount in column B must be. You have to determine column B first. I used 8 per cent in determining the amount to be set out annually in column B. That results in the setting up of a less amount by the difference between $91,327 and $69,029. I arrive at B first. The amounts in column C are not determined from B. They are obtained from column E which carries forward both columns B and C.

You ask if I have in arriving at the result over in column K used as the basis of computation to which I apply the 8 per cent assumed return the depreciated and not

the undepreciated amount which I originally started out with. I don't wholly agree with that at all. In order to get column K I relate what I would call the true return to the net investment; but in order to get the true return I have first to get this 8 per cent overall. Thinking now in terms of investment rather than rate base, the purpose of column K is to test the original 8 per cent and the original amortization assumption with which I start off. That is the way the testing comes about, I think. I am not using the term rate base in this exhibit.

The $490,290 shown as the sum of the figures in column J is divided by the average net investment over the period in order to get the 8 per cent shown at the foot of column K. You ask if that is the average depreciated investment. It is the average based on the net investment. You ask me if in Table III as well as Table II of Exhibit 182 I have used the sinking fund method of accruing the amortization reserve and have in arriving at my final result over here in column K used a depreciated rate base and not an undepreciated rate base. My answer will have to be "No" to that question as stated.

Cross-Examination by Mr. Slaff.

Following the question and answer that were read to me by Mr. Morgan from page 7808 of the record, the following questions were put to me and I made the following answers on direct, beginning in line 18, page 7808, of the record:

"Q. Will you state what you mean by the determination of the annual depreciation expense or amortization allowance on a sinking fund basis?

"A. That method of determining the annual depreciation expense or amortization allowance consists simply in finding that sum, called an annuity, that would accrue to the full amount to be depreciated or amortized if the annuity were set aside in a fund and compounded at the rate of interest used to determine the required amount of the annuity.

"Q. If the return were allowed on an undepreciated rate base but the annual depreciation expense were determined on a straight line basis, what would be the effect as regards the rate of return earned on the depreciated rate base over a period of years?

1721 "A. In that case, as regards any given rate base, the rate of return on the depreciated rate base would increase year by year.

"Q. That is, if the rate of return were originally fixed at, say, 6 per cent the rate of return in subsequent years on the depreciated rate base would rise progressively above 6 per cent, is that correct?

"A. Yes, sir.

"Q. If the annual depreciation expense were determined on a sinking fund basis and by use of an interest rate of, say, 2 per cent, and if rates were fixed so as to provide a rate of return of 8 per cent on the undepreciated rate base, what would be the result in subsequent years as regards the rate of return on the depreciated rate base if the annual interest accruals on the depreciation or amortization reserve at the rate of 2 per cent were deducted from the mount of return?

"A. Under those conditions the rate of return on the depreciated rate base would also rise year by year but less rapidly than in the case of the previous example.

"Q. If the annual depreciation or amortization allowance were determined by the use of a 6 per cent rate of interest and a rate of return of 6 per cent were allowed on the undepreciated rate base, what would be the result in subsequent years as regards the rate of return on the depreciated rate base?

"A. Under those conditions the rate of return on the depreciated rate base would remain at 6 per cent in subsequent years if the annual interest accruals at 6 per cent on the amortization reserve were deducted from the amount of return.

"Q. Can you state as a general principle that when the annual depreciation or amortization expense is determined by use of a rate of interest equal to the rate of return, the rate of return on the depreciated rate base will remain at the same percentage throughout a period when the interest accumulations on the amortization reserve are deducted from the amount of the return.

"A. Yes, that can be demonstrated."

That which I have just testified was what my Exhibit 182 was intended to demonstrate and in my opinion that is what it does demonstrate.

Redirect Examination by Mr. Booth.

The document you hand me is headed "National Association of Railroad and Utilities Commissioners Report of Special Committee on Depreciation Principles and Methods Submitted to the National Association of Railroad and Utilities Commissioners at Its Fiftieth Annual Convention in New Orleans, Louisiana, November 15-18, 1938". On page 8 there is a heading that carries the number 10, and the heading, which is in italics, reads as follows:

1722 "If the sinking-fund method is used on connection with an undepreciated rate base the sinking-fund interest rate should be the same as the allowed rate of return."

Then, the material following in regular type reads as follows:

"In the event the sinking-fund method is used with an undepreciated rate base, the so-called interest on the sinking-fund depreciation reserve should be removed from operating expenses and treated as gross income deduction for the purposes of the rate proceeding. The sinking-fund interest rate should be the same as the allowed rate of return in order to compensate for the fact that no depreciation is deducted from the property. If the sinking-fund interest rate is less than the allowed rate of return, the combined depreciation and return allowed will be excessive in an amount equal to the difference between the sinking-fund interest rate and the rate of return times the depreciation otherwise deductible in determining the rate base."

The theory expressed in the language I have just read is in part certainly the theory of my Exhibit No. 182. The men who were on the committee which made that report were as follows:

Cesel R. Colbert, Wisconsin, Chairman;
John C. Damon, Securities and Exchange Commission;
W. D. Dittmer, Illinois;
Herbert J. Flagg, New Jersey;
A. B. Greene, Florida;
E. H. Merrill, Utah;
J. Donald Murray, West Virginia;
W. J. Norfleet, Federal Communications Commissions;
Harold E. West, Maryland.

Question by the Examiner.

You ask me to identify those names for you, Mr. Examiner. I know Mr. Colbert was for a time on the staff of the Wisconsin Commission. I don't know whether he is still there or not or what his capacity is. Mr. Dittmer was supervisor of rate investigations of the Illinois Commerce Commission. I do not know any of the other gentlemen mentioned there.

Cross-Examination by Mr. Morgan Resumed.

As I understand it this is just a report of a committee. It is the 1938 report. Ordinarily committees report every year so the probabilities are they have made a report to the 1939 convention. I don't know whether this is a recommendation or what it is intended to be. It is just a statement of thoughts on the matter, I suppose. I don't know whether that paragraph was repeated by report or not for 1939. You ask whether or not the National Association of Railroad and Utilities Commissioners sanctioned that report. I don't know whether or not it ever took any action with respect to the report.

1723 You ask whether as a matter of fact that is a recommendation varying the procedure that has usually been followed in proceedings where the sinking fund method of accruing the amortization reserve was resorted to. (Objection by Commission Counsel overruled.) I don't know what the purpose of the statement is. I don't know what it was put in there for. All I know is that I was handed a document and asked to read it. I did not refer to it in compiling my Exhibit No. 182. I think I had seen that report before I prepared the exhibit. I have seen it some time. I certainly had no recollection of it at the time I prepared Exhibit No. 182. In other words my Exhibit No. 182 was prepared independently of that report. I think over all it agrees with my exhibit. I would hate to say it agrees entirely. I am referring to the paragraph I read. It looks to me they are stating the same thing I am trying to analyze mathematically here.

You ask if my position simply is that the rate of interest that should be applied to the annual accruals for the purpose of amortizing the total investment should not in any way be related to the earning which could be accomplished

by applying that fund to investment at a risk free rate of interest. (Objection by Commission Counsel overruled.) I am trying to recall the answer I previously gave to that question. My point is as I understand the mathematical principles where under the rate-making formula which we are discussing can be justified, the sinking fund rate of interest should be the same as the rate of return percentage, and that sinking fund rate of interest, therefore, has no more relation to the ability of the annuity to earn money than does the rate of return itself.

You ask what is the difference in the practical working out in calculating the amortization reserve on a sinking fund basis using the allowed rate of return as the compound interest rate and accruing it on a straight line basis, and reducing the rate base every year in advance of a hearing as to whether it ought to be reduced. This analysis does not go to what the regulatory commission does in subsequent years. It goes to the mathematics inherent in a projected analysis of what the regulatory commission does as of a given time, trying to project that to see what the interpretation of the procedure is.

You ask if I don't get exactly the same result if I apply the straight line method of computing the amortization reserve and then apply the rate of return to the rate base that I start out with less the amount of the accrual every year as I would accomplish if I followed the procedure outlined in Table 3 of Exhibit 182. I don't know what you are referring to, what results you want me to compare. I will have to know what result I am supposed to compare. You ask if I apply the rate of return to the depreciated rate base, and accrue the annual allowance for amortization purposes as I have done in Table 1 of my Exhibit 182, I get to exactly the same result as to the earnings that are allowed as if I had used the procedure shown in Table 3 of that exhibit in the ultimate washout, namely, 8 per cent on the undepreciated rate base.

In Table 1 I arrive at amortization in the amount of $100,000 a year or $1,000,000 for the ten years. Now, an 8 per cent return on the net amount of the investment, year by year, would give the amounts of return shown in Column 1, which total for the ten years $440,000. Consequently in Table 1 I arrive at a total of $1,440,000 for amortization and return, and in Table 3 I arrive at a
1724 nominal or so-called amortization in the aggregate sum of $690,290, and at the so-called amount of the

return over the ten-year period of $800,000, the total for the so-called amortization plus the so-called return, thus aggregates $1,490,290. Also on Table 3 I would arrive at $1,000,000 as the true amortization, and at $490,290 as the true return, again giving me a total of $1,490,290 for the two items, and the total for the two items of amortization and return that I arrive at in Table 3 is thus somewhat more than the corresponding total I arrive at in Table 1.

The accrual is set up at a more rapid rate in the first instance than in the second instance, this is due to the fact that net investment declines more slowly under the compound interest method than under the straight line method; therefore you have a higher average net investment for the period.

No, when I get through with the calculation I have not allowed an earning of just 8 per cent on the amount I started out with less the annual accruals. I have allowed the earning all the way through, but I merely combined it differently. I don't take anything away from the figures. They are all there. I just simply split them up in two different fashions here. I allow an amount in each instance which is the sum total of $1,000,000 plus 8 per cent on that $1,000,000, less the accruals to reserves from year to year during the period. I allow in the aggregate an amount sufficient to amortize the entire million dollars and to pay 8 per cent on the unamortized portion every year. That is the same amount that is obtained by the other process.

Cross-Examination by Mr. Slaff.

In that connection I believe I referred to the return shown on Table 1, $440,000 over the ten-year period, as my conception of the true return. The comparable figure of return corresponding to that figure, as shown on page 3, Table 3, where I use the same rate for the rate of return and for interest accrual to the sinking fund is $490,290. That is what I call the true return in the case of Table 3. The latter figure over the whole period in dollars comes to some 10 or 11 per cent more in the sinking fund method. The $490,290 exceeds the $440,000 by 10 or 11 or 12 per cent, roughly.

Cross-Examination by Mr. Morgan Resumed.

You ask if under the procedure in rate making proceedings where the straight line method of computation has been used, the rate base is reduced as between one regulatory proceeding and the succeeding one by the actual depreciation without regard to the book accruals. (Objection by Counsel for Illinois Commerce Commission overruled.) I am not prepared to answer the question. I can't even say as to whether the Illinois Commerce Commission does that. You ask me if I know whether or not this procedure I have outlined here in either one of the three tables I use in Exhibit 182 conforms to the ordinary procedure. (Objection by Commission Counsel overruled.) I have not actually made any thorough-going study of precisely the processes gone through. I have only my conceptions as to the principles. You ask if I am not offering this as something new to be applied in the field of rate making. It is something new to me. I have never seen it before.

Redirect Examination by Mr. Booth.

You ask whether the California Commission has consistently followed the same principles which are contained in my Exhibit 182. I don't know.

1725 You asked whether I have made an approximate calculation of the population indirectly served by the Natural Gas Pipeline Company of America. I have gathered some figures in connection with that. According to the 1930 census the city of Chicago had a population of about three and one-third million. The latest estimate I have seen is one that purports to show the population of Chicago as of January, 1939, and that estimate was three and two-thirds millions.

With respect to the area served with gas by the Public Service Company of Northern Illinois, I added up the 1930 census population figures for all the communities and arrived at 604,000. The company, however, states that they consider the area in which they serve gas to have a population of 690,000, a larger figure, which may be due either to using later estimates than the 1930 census or to including population on the fringe of a municipality that would not be included in my census figures.

In like fashion I arrived at the following information for the Western United Gas and Electric Company, in its northern division only. That company reported to me that they considered the area of the territory served to have a population of 347,000. By adding up the census figures of the community I arrive at only 288,000.

In addition, Peoples Power Company, who obtains gas from Natural Gas Pipeline Company of America, serves four towns with gas here in Illinois. There are a few communities through Iowa and Nebraska that appear to receive gas service upon the basis of some gas, at least, obtained from the Natural Gas Pipeline Company of America.

Taking the census figures of the population for the Peoples Power Company's four towns and these few towns in Nebraska and Iowa, I arrive at a total population for those particular towns of 306,000. Now the figures there—I have given different figures for the same thing, depending upon dates and sources.

The total will probably run from four and three-quarters to four million eight hundred thousand. I did not include a little town out in Kansas that I understand gets gas from the Pipeline. I couldn't find the population figure for it anyway.

You ask whether I was questioned by Mr. Morgan about studies of comparison of rates of various companies and their use in rate cases. I do not recall what I said about their use in rate cases. I said something about making comparisons from company to company. He questioned me about rate comparisons. I thought he was asking me as to what I had in mind or what I did when I said I made rate comparisons in giving my qualifications. I recall there was a proceeding before the Illinois Commerce Commission involving the application of the Peoples Gas Light and Coke Company for a rate increase.

You ask whether Dr. Paul J. Raver, who was at that time the head of the rate and research division of the Illinois Commerce Commission, prepared a table of comparison of rates, attempting to compare the rates of the Peoples Gas Light and Coke Company and other large
1726 cities served a mixture of natural gas and artificial gas. I remember that Dr. Raver compared something along those lines. My recollection is very hazy on it. I know it went to that general subject. You ask if I recall

whether an effort was made to submit it as testimony before the Illinois Commerce Commission and it was refused. I seem to have such a recollection that there was a refusal at one time to put in that exhibit. It seems to me the ruling was made by the Examiner, not by the Commission. I do not recall whether it was ever appealed to the Commission or not.

Cross-Examination by Mr. Slaff.

I have a prospectus of the Lone Star Gas Corporation on the $20,000,000 issue of 15-year 3¼ per cent sinking fund debentures due in 1953, dated August 25, 1938. On page 17 of that prospectus the first paragraph is captioned "Gas Reserves". The first paragraph following that caption reads as follows:

"Ralph E. Davis, Inc., Engineers, have made a survey of the gas reserves of the Lone Star Gas Company, Lone Star Gasoline Company and Community Natural Gas Company, the three subsidiaries which produce and purchase all the natural gas for the System except such gas as is purchased for distribution in El Paso, Galveston, and Brenham, Texas, and Guthrie, Oklahoma, and Council Bluffs, Iowa. This survey covers reserves of gas available from System's production properties and reserves controlled by the System through gas purchase contracts. The letter addressed to the Corporation as the result of this survey is quoted below."

(Prior to the reading of the above quotation the Examiner, at the request of counsel for defendants, announced that the language read would be limited to the purpose of showing that the firm, Ralph E. Davis, Inc., Engineers, made an estimate in connection with the Lone Star Gas Corporation's financing.)

Immediately below the language I have read on pages 17, 18 and 19 there appears a copy or what purports to be a copy of a letter from Ralph E. Davis, Inc., Engineers, Pittsburgh, Pennsylvania, dated August 3, 1939, addressed to the board of directors of the Lone Star Gas Corporation, 100 West 10th Street, Wilmington, Delaware, signed by Ralph E. Davis, Inc., by Alden W. Foster, vice president, which deals with the reserves of the System.

I have here the prospectus dated August 17, 1939, of Oklahoma Natural Gas Company in connection with the $17,000,000 First Mortgage Bonds, Series B, 3¾ per cent,

due August 1, 1955; and also the 58,000 shares of 5½'s Convertible Prior Preferred Stock. The fourth full paragraph on page 13 of that prospectus is captioned "The Gas Supply". Following the caption appears the following language:

"A copy of the report of Ralph E. Davis, Inc., on the natural gas supply, valuation of gas producing properties and oil and gas leases of the company, is filed as an exhibit to the registration statement, to which reference is hereby made. The letter summarizing certain portions of the report is quoted below."

1727 Below the language I have just read, on pages 13, 14, and 15 there is a letter from Ralph E. Davis, Inc., Engineers, addressed to Mr. Joseph Bowes, President, Oklahoma Natural Gas Company, Tulsa, Oklahoma, signed by Ralph E. Davis, Inc., Engineers, by Gail F. Moulton, vice president, which deals with gas reserves of Oklahoma Natural Gas Company. (Objection by Company Counsel overruled.) The first paragraph of that letter reads as follows:

"In accordance with your request, we have made a study of the natural gas supply available to Oklahoma Natural Gas Company for the purpose of estimating the natural gas reserves controlled through lease ownerships, through gas purchase contracts and available in fields presently connected to the pipeline system. We have also carefully considered the availability of gas in other fields in this territory served by the company and the prospects for the discovery of additional gas supply within a reasonable distance of the company's present lines."

You ask if from there on that letter deals with gas reserves available apparently to that company or to its system. They talk about a field investigation and adequacy of the reserves, and the company's requirements, and so on and so forth.

Recross Examination by Mr. Morgan.

On page 6 of the same prospectus of Lone Star Gas Corporation from which I read a few minutes ago there is an outline map or symbolic chart which bears the title "Major Territory Served by Lone Star Gas Corporation and Subsidiaries". (Objection by Counsel for Illinois Commerce Commission overruled.) There is a footnote to that ex-

plaining that some other territories are not shown. There is a tabulation on the page which carries the caption "Gas Fields". The tabulation then proceeds to list 39 of them or 39 things called gas fields. I don't know what the technical description is. From that caption I think it is intended to be a gas field. On the map there are various green spots. According to the legend those are gas fields and each one of them is numbered. The list, which is numbered from 1 to 39, shows the names of each of those fields and identifies them by this numbering system.

Redirect Examination by Mr. Booth.

I don't know anything about the reserves in any one of those fields. I don't know whether the total reserves in the 39 fields listed there are less or more than the reserves of the Texoma Natural Gas Company in the Panhandle Field.

Exhibit 185 submitted by Mr. Knapp shows the revenues for Peoples Gas Light & Coke Company for 1938 to be in the amount of $37,976,207. The figure shown for 1938 in the annual report of the Peoples Gas Light & Coke Company to its stockholders at page 7 thereof is $40,462,775.12. That appears to be indicated as total revenues. The corresponding figure for 1937 is $39,318,161.61. Now whether those figures are on the same basis as appear in Exhibit 185 I would have to check to see. The figures disagree and that is why I would have to look. The corporate and the consolidated revenues ordinarily do not agree.

1728 FRED KLEINMAN, a witness for complainant, called for cross-examination, testified as follows:

(December 5, 1939.)

Redirect Examination by Mr. Booth.

You ask if I have anything additional to say with reference to the exhibits that I presented that I did not state at the time I testified on direct. Yes, I noticed on reading the transcript of the evidence that I neglected to comment on one item contained in Company's Exhibit No. 141 which is involved in the calculation I made. That is in my Ex-

hibit No. 188. That item is shown on line 17 of page 2 of Exhibit 141 and deals with replacement contingencies of ten per cent. The amounts involved vary from $6,439 in 1939 up to $36,417 in 1945, and intermediate amounts for other years. The total involved is $267,346 over the entire life of this property as shown on Company's Exhibit No. 141.

Originally in setting up my exhibit I was faced with the logical assumption to be made on the basis of the information contained in that line. The replacement contingencies of ten per cent are mathematically ten per cent of the capital expenditures for replacement and the cost of retiring capital replaced less the salvage value of retirements. It seemed to me an illogical assumption to make that all the amounts would be exactly in the noted amounts for each year, and the total amount involved being comparatively small, and having no real effect on my exhibit except to reduce, if these replacement contingencies happen, the cash on hand at the end of this property's life by $267,000, which is small in view of the other figures. I therefore merely left that out.

Cross-Examination by Mr. Morgan.

I graduated from Cornell University in 1913 with a degree of Bachelor of Arts. I did not major in the field of accounting. I majored in philosophy and psychology. I did not take accounting work in connection with my university training. When I left the university I went immediately with the Brooklyn Union Gas Company in a clerical position. I learned accounting in connection with my practical work. My accounting training has been of a practical character rather than formal. My tenure with the Brooklyn Union Gas Company extended over a period of about four years. I don't know now exactly what my designation was. I was employed in the general office of the company. I was not an official.

My work was changed during the four years because I was engaged first in the branch office located at Newtown, one of the subsidiary companies of the Brooklyn Union System. At the end of two months I was transferred to the general office in the auditing department. I received no special titles or anything else. I naturally gained after only two months with the company in the capacity of a clerk

no knowledge of accounting. I think my duties were covered in my direct testimony. I did other work besides
1729 just the low grade clerk's work. I started very, very small. I began at $52 a month with the Brooklyn Union.

The National Aniline and Chemical Company at the time I was employed was a recent merger of several of the largest dye stuff and fancy chemical producers in the United States. They had engaged a Mr. George W. Yates, who had formerly been comptroller of the American Tobacco Company, to put in a new general accounting and cost accounting system. Naturally with several companies in the one new company you would have to install one uniform system of accounting. I was engaged directly by Mr. Yates to act as his assistant and worked on that job. I began the general ledger for the company, ran it myself for a while and instructed somebody else how to run it. I worked entirely under his jurisdiction on putting in a general and cost accounting system for that company. My work with that company was strictly of an accounting character.

I began with the Emergency Fleet Corporation as assistant local auditor and at the end of one year became local audifor. My position there was the head of the accounting department and I was one of the two people hired who were charged with the duty of signing the checks to the contractor, which was the Submarine Boat Corporation, for their expenditures under the terms of the contract. I signed the checks subject to a countersign. The other man signed subject to my countersign. It took two signatures to make the check valid. In my work with the Emergency Fleet Corporation I was dealing strictly with accounting matters.

When I went with the firm of Barrow, Wade, Guthrie & Company, public accountants, I was a staff member working on accounting. I said in my direct testimony that while employed by that firm I worked on a variety of accounting work, but from 1925 specialized in utility work and principally in the investigation of utilities prior to the purchase of the utility, either as property or as a company, by some banker or some holding company. By that I mean I worked on the accounting features of utilities. I went over their figures and their accounts and books and dealt with them from the accountant's standpoint.

You ask the names of the natural gas companies on whose

records I worked during that period. I can't give you the names of the natural gas companies on whose record I worked. The work on natural gas companies which I did was primarily in connection with three pending mergers into a new company. One of them actually became a company known as the Duquesne Gas Company, located in Washington, Pennsylvania. The other two. One was going to be called the Western Pennsylvania Gas Company and the other the Pittsburgh Natural Gas Corporation, I think, never became a company since the bankers for whom I was making the investigation failed in their attempts to finance it.

The properties which I examined in that connection were very largely holdings of individuals and small corporations who had been drilling wells and attained gas and who sold their entire output to the natural gas companies op-
1730 erating in the Pittsburgh area. Some of these properties, instead of selling, were using the gas themselves. I am thinking now about H. C. Fry Glass Company that had developed a gas field for use in the manufacture of glass.

My connection with those natural gas companies and the individuals whose properties were involved were of an accounting nature. It was my duty to ascertain the net income for a period of three years prior to the date I was making my examination for ultimate certification by my firm to the bankers for use in the prospectus in bringing out the securities on the properties, if, as and when they mere merged. My duty was to make an audit, pending certification, as to what the earnings were and then to make up various types of pro forma balance sheets reflecting the various types of financing which the banker thought he might try to use in financing his deal. I didn't originate the type of issuance because that was the job of the bankers' own employees.

I stated that when I was with Leidesdorf & Company, public accountants, of Chicago, my principal activity was to advise and consult with the Illinois Commerce Commission, "principally again with regard to the electric rate case of the Public Service Company of Northern Illinois which was then pending". You ask what is the significance of the word "again". I had used "principal" and using it the second time I wanted to show the particular activity I had been working on for the Illinois Commerce Commis-

sion was this one electric rate case. I did not have any general duties at that time. I had had no connection with the Public Service Company of Northern Illinois prior to that time. I didn't mean "again" in the sense of the second time as to the Public Service Company, but the fact I had used "principally" and I wanted to narrow it down specifically to the work I was doing for the Commission.

1731 I can give you a number of the companies with which we were concerned when I was with Barrow, Wade, Guthrie and Company. The American Gas and Power group, the Standard Public Service and Associated Public Utilities group. The first one was primarily electric and gas; the second was primarily telephone and water. They were holding company systems. The operating companies were far too numerous to remember. Some of these companies had fifteen or twenty smaller companies in there. We are talking about something that is a quite a number of years ago. I could, if you are interested, find a complete list. However, to be indicative of the type of company, I think the largest individual and complex utility I worked on was the Tidewater Power Company and the Pinellas County Power Company. Tidewater had electric, gas, heat, street railway, bus, toll bridge, amusement park, and hotel, and I think several other activities.

You will notice I am looking at Mr. Woodford. We were both associated together at that time and he remembers perhaps more vividly than I do the activities of these companies.

The largest water company I worked on was Consolidated water Company of Utica, New York. The largest individual Telephone company I worked on was Ashland Telephone Company in Kentucky.

The names of some of the other holding company groups were National Public Service, American Commonwealths Power Corporation.

I am an accountant, Mr. Morgan, and all of my work has been the work of an accountant. I did not have anything to do with the issuance, the purchase, or the sale of utility securities or the securities of other types of industry except in the matter of doing accounting studies and accounting reports. My title now is Chief of Accounts and Finance of the Illinois Commerce Commission. I said in describing my duties as chief accountant I have charge of

all the accounts, general supervision of the accounting department, of the Illinois Commerce Commission. You ask what my duties are as chief of the Finance Department. I sit as hearing examiner in the more important finance cases presented to the Illinois Commerce Commission. Before a utility can issue securities which are to be outstanding for more than one year, they must receive the authorization of the Illinois Commerce Commission. The utility therefore comes before the Commission with a petition asking for authorization to do what they want to do. It is my duty to sit as hearing examiner. In the smaller cases I often delegate that duty to my principal assistant, Mr. Tholin. In the larger cases I sit myself, making my own investigation and advising the Commission on the merits of the company's proposal.

That work goes somewhat further than dealing with the figures involved in the financing. The Commission expects me to point out to them any proposal of a company which would lead to an unbalanced capital structure; any proposal of a company to pay excessive interest rates or excessive fees to underwriters; or to have unusual terms in their mortgages or their indentures; and all the other facts which would be pertinent for the Commission to know to make up their minds as to whether authorization should be granted to the utility to do as they seek. The information from which to test the issue is based on general knowledge and experience of what other companies in the field have been able to do and are doing and on the testimony presented by the company as to the particular circumstances in the particular case, as to why it is reasonable or proper to do as they wish to do.

I stated I testified in several rate cases. I testified on rate of return in only one of those, that of Peoples
1732 Gas Light and Coke Company. In the Public Service case and the Commonwealth Edison case I was testifying on income available for return. You ask if that was an auditing or accounting feature of the case. It is an accountant's duty to ascertain the recorded income available for return. Of course, that requires a knowledge of rate making principles and general knowledge of how utilities operate their business in order to advise the Commission as to what were unjust or unreasonable charges, or what might be unjust or unreasonable charges if I am not able to determine of my own accord what is unjust and unreasonable.

You ask if in those two cases my testimony then wasn't really of an auditing character to determine the propriety of charges in arriving at the earnings available for return. I think that both attorneys would object if I said "Yes," because after all, what I am determining is the facts relating to the income and expense of the company, those facts being presented to the Commission; then the Commission determines what is reasonable and what is not reasonable. I then testified what I found the facts to be concerning the charges, with such comments on the propriety of those charges, or on the status of those charges, that occurred to me. I made an independent investigation of my own to determine the reasonableness of the company's charges to the operating expenses and the amount which the company included as their revenues, and where I considered any item unreasonable or questioned its reasonableness, I set it forth for the Commission to look at and make their decision.

In the case of Peoples Gas Light and Coke Company I testified as to rate of return. I don't remember the date when I testified. It was in 1937, I think. That case is over but is still pending in the courts. So far as the Commission is concerned, it is a closed case. The Commission handed down its decision, and it is now up to the Attorney General of the State of Illinois to defend that decision in the courts.

I had nothing to do with either of the two volumes constituting the study of the staff of the Federal Communications Commission on rate of return, to which reference has been made in this record. I did some work on that subject, as I have stated. I rendered a report to my immediate supervisor which set forth my opinion of the status of the problem on which I was engaged. I did not complete my work. I left rather hurriedly. The funds for the investigation were running out, and the work was discontinued completely about four months after I left.

The annual reports filed by the Illinois utilities are forwarded to my department for review. They include the number of customers by various classifications, the quantity sold, the total dollars realized on that quantity. They include special inserted pages for breaking down those figures by rate schedules. They show the reported gross and net earnings of the companies.

You ask what I have to do with them personally after they are filed with the Illinois Commerce Commission. I

give a few of the more important companies a look to see if there is anything novel or startling; but I handle the annual reports as a routine matter which one of my assistants takes over. He has an audit manual prepared, which I have approved, for work by my department, setting forth every operation to be done on these utility reports; which my men proceed to do. When a question arises as to whether things are correct or incorrect, they report to him in the first instance. He corresponds with the companies.

After he receives the answer from the company, if
1733 the answer appears to be satisfactory, that ends the matter. If, however, it does not appear satisfactory to him, then they are referred to me. I only personally get into those matters where my assistant believes something should be called to my attention and possibly to the attention of the Commission. You ask if my department then undertakes to analyze these reports from time to time. Not analyze. That primarily falls on Dr. Dittmer, the superviser of rate investigation, and Mr. Ostrander, the supervisor of the rates and research section. I check them for accuracy, and completeness, as far as we can, see that they are properly prepared and that they are annual reports that the Commission can use for their further purposes.

In connection with my duties I have promulgated a revised system of accounts, or sponsored a revised system of accounts for electric and gas companies. Yes, I am a member of the Committee of Statisticians and Accountants for Utilities of the National Association of Railroad and Utility Commissioners and have been since 1935. That is somewhat poorly worded. The correct name is the Committee on Utility Statistics and Accounts. The committee is a committee of the National Association of Railroad and Utility Commissions. I was not a member of the Special Committee on Depreciation which made a report in 1939. Dr. Dittmer was the representative of our Commission on that committee.

Referring to my statement on page 8030 of the record that for the period 1925 to 1933 I was almost continuously in touch with the financing of corporations, you ask if that had to do with accounting activities in connection with the financing of corporations. No, it went deeper than that. The bankers would make up a proposed capitalization of the company they were going to form or recapitalize. I

would then be charged with the duty of reflecting those facts in a pro forma balance sheet, which was largely used in those days, to present to all interested parties what the company would look like after the proposed financing had gone through.

As those proposals were charged, and as the negotiations went further and further to conclusion, various of the terms of the financing would be changed; it would be my duty to prepare a new pro forma balance sheet; so that I actually became thoroughly familiar with what was happening during those negotiations in order to reflect the latest proposed facts in a statement which ultimately the firm by which I was employed was called upon to sign.

The assumptions and the estimates upon which those pro forma estimates were based were the assumptions and estimates of others. I had to understand what the various proposals were and what the then state of the negotiations was. I used that knowledge in preparing an accounting statement. The executives would come in and the banker's man would come in to see what it would look like if I did so and so. Then I would have to get all the information which I knew I needed in order to prepare the balance sheet. It was not necessary for me to know why the banker was insisting on a price of eighty-five instead of ninety, or why the promoter for whom I was working was willing to raise the interest from 5½ to 6 per cent.

I knew what the financing was all about. In fact, while it was not my duty to give them any advice, naturally, in the financing, I knew what the financing was going to be.
1734 Then we used that good old formula of dividing earnings by 15 or multiplying by 6, and that would give us the amount of bonds that could be put out, and things like that. It was not as if I had worked on only one or two of them. I worked with the bankers right along. They knew me and I knew them, and we worked together on the negotiations. They did not consult me concerning the negotiations. When I stated that my experience was sufficiently continuous and detailed to permit critical judgment of a situation, I meant I was in a position to pass judgment on the figures when I got them. I was not consulted by these bankers as a financial adviser, but I was intimate with these people and discussed the proposals which were put out at all times. I knew what the financing was. I knew what other companies were doing. Of course, they relied

to some extent upon my advice, but I had no responsibility for such advice. I was working for a firm of public accountants, and public accountants merely make up the statements. They take no fees for financial advice. That is not a part of a public accountant's duties.

You ask if it is not a fact that the security issues which have been referred to me as an examiner or to my department and assigned by me to Mr. Tholin have had to do largely with bond issues. (Objection by Counsel for the Illinois Commerce Commission overruled.) I don't know that that has any bearing on the particular discussion. What you want to know is whether the security issues referred to the Illinois Commerce Commission were mostly bonds. Both in numbers and in dollars they were mostly bonds. There were, however, very substantial amounts of stock. The single largest item of stocks were, of course, the Commonwealth Edison stock, that being one of the largest corporations in the city; and the volume of stock ultimately to be outstanding as proposed, and for which they received authority to issue, is, I believe, somewhere in the neighborhood of 165 or 170 million dollars. As to smaller companies we have before us now a proposal (which the Commission is inclined to deny, and which the company is inclined to change) to issue $450,000 worth of common stock and $450,000 worth of preferred stock.

We have another proposal which is dependent on whether the company will be able to purchase the properties which they are trying to purchase, which will required somewhere in the neighborhood of $400,000 worth of stock. We also have had during the past two years bus companies in more or less large amounts; everything from $1,000 up.

You ask whether the issues I have mentioned had to do with public issues of stock or with consolidations and reissues of stock. The Edison is a public issue. The others, most of them, were privately taken, not issued through underwriters or offered to the public generally by any means. Utilities in the State of Illinois can only issue securities for the acquisition of property or for refunding of securities previously issued for the acquisition of property. That is statutory. You ask whether some of these involved stock transactions where the properties were acquired directly through the issuance of stock as opposed to raising money for the buying of property. We had both types of transactions. Some of them, of course, were properties proposed to be constructed. Particularly in the last few

years, I think, we have had three requests for capitalization of pipelines from the new Illinois oil fields to various places. There the property is not in existence at the time. They receive authority of the Commission to issue securities for money to be used for the construction of property.

As a whole, I would say that the great bulk of the financing which has come under the jurisdiction of the Illinois Commerce Commission has had to do with bond issues. There have been some stock transactions covering the entire period. There was not much of it in the first part, except in the transportation field, bus companies. Later
1735 there have been more substantial issues for other types of companies. When I say the entire period, I mean the period of my tenure with the Illinois Commerce Commission.

One large electric company which has financed through the issuance of common stock within the past four years, under the jurisdiction of our Commission, is the Commonwealth Edison Company. We have two small gas companies who have financed through the issuance of common stock. This was not for the raising of additional cash capital. The gas companies have had no real use for additional capital throughout this period of depression. Most of them were using the moneys accumulated through depreciation funds. There have been no gas company issues for the purpose of raising additional cash capital that I recall right now. The sale of the Commonwealth stock was in part to the public for cash. It was a sale to certain specified numbers of the public for cash. They received authority to sell to not more than twenty purchasers and not less than 25,000 shares to any one.

You ask whether, in my statement on page 8033 in which I referred to my accounting and business experience, I meant by business experience my official acts. I have never been engaged in business. I have had to give consideration to the factors which constitute risk in business. You ask what constitutes a risk in business. A risk in business means the venturing of money due to a decision that somebody is making. Sometimes the decision may be negative and money is ventured just the same.

For example, a man might own a thousand shares of U. S. Steel stock. He is, of course, at all times faced with the problem: shall he hold on; shall he sell? His decision may

be to hold on. He is, nevertheless, venturing in that stock the amount of money which he has invested in that stock, or which he can get out today if he decides to sell today.

Primarily the decision is the thing that creates the risk or constitutes the risk. Primarily a risk means a decision you are making, to venture some money one way or the other, with the understanding, of course, that it sometimes has a negative aspect of holding on to what you have, or not venturing money but keeping it in idle funds. You ask whether it is the decision or the thing that confronts the man who makes the decision that constitutes the risk. Well, that is, I think, getting into a metaphysical distinction, as to whether it is the decision or the act of the man. He has either an investment which may be disposed of today or idle funds which he may invest today. He may be faced in business with all kinds of problems which the management must decide upon, the problem of: what will we do with our employees who are asking for increasing wages? Will we buy cotton today for our manufacturing or will we sell short today and get the cotton goods manufactured and buy the cotton as we sell the goods? Will we keep our plant open or will we shut it up? Will we run full force and manufacture for inventory, or will we run half force and merely take care of orders we have today? Will we raise our prices? Will we lower our prices? Each one of those decisions is a complex of all kinds of business factors, and being that complex the management must face the entire complex and make a decision, "What are we going to do?" In making that decision they take a risk regardless of which way they decide. There is no way of not taking a risk when you make a decision in business.

Questions by the Examiner.

1736 You ask what I call the adverse factors that the risker has to face. The risk is present whether the factors are adverse, or the contrary. The business man cannot escape risk.

Let us take a man in a steel business. He knows that in manufacturing steel he needs iron ore and he needs scrap. The price of scrap is rising. Shall he contract for three months' supply, or shall he not?

Now what ultimately is going to be the result of that decision is, if he contracts for a three months' supply at to-

day's price and the price goes up, he has made more money. If he does not contract and the price goes up, he has made less money than any competitor who may have contracted today.

Those are risks in business men must take. Once having sent out that purchase order, "We will buy for delivery day by day three carloads of scrap," the man is taking a risk. He cannot escape that risk. He is in the steel business. He must make up his mind one way or the other.

Now, he may get scrap first and decide, "I will pay you as I use it, whatever the then market price is." That is also a risk. If his competitor buys at today's market and he buys at the future market and the price of scrap goes up in the meantime, he is behind his competitor. If it goes down he is ahead of his competitor. That is the risk he and his competitor must take to stay in business, and there is no way of escaping it.

You ask what I call the element that produces the risk, that characterizes the thing as a venture. The fact that he either does or does not do a certain act necessary to be decided immediately, make a decision necessary to be made today; it cannot wait, which will ultimately result in either a better profit or a worse profit, depending on which side of the question his decision ultimately rests.

That is the real risk in business. That is the reason why General Motors may make a large amount of money and Henry Ford a small sum of money. That is the only risk that there is in business. Risk in business does not mean contingencies; it does not mean that we may get a wave of Communism that will blow up the plant. Those are not risks in business.

The risk in business is that in order to stay in business today I must make certain decisions. I must sell at today's price or hold back; I must close my plant or keep it open. Those are the risks; the way you decide all of those risks, which are constantly occurring, is the way your profit and loss account is going to look at the end of the period or whenever you look at it, and it means substantial sums of money. As all accountants know, when you get to the end of the year and you find out that this company in November is getting ready to manufacture for next spring's sales and contracted for so and so many bales of cotton at such and such a price. It is now January 1st. I go over the balance sheet and I find out that the contract that they let,—sound according to their opinion,—is for

four cents a bale more than today's price; that is, four cents a bale on all the bales loss which we take into consideration right then and there and write off as loss for that year, and must write off as loss. That is risking money. When they sign that purchase order, that is risking money. There is no way to get away from it.

1737 *Cross-Examination by Mr. Morgan Resumed.*

You ask whether I think that is the kind of risk which the "decisions" talk about when they say that compensation in a regulatory proceeding involving rate of return should be in proportion to the risks involved. I think that since the utilities are competing for all the capital in all the world with all the other businesses in the world, that naturally capital is going to take into consideration that there are those types of risks, and I think those are the only real risks that there are in business that are important enough to be reflected; that those are the factors of risks that must be taken into consideration.

You surely cannot use that company "A", which is practically in the business of gambling its money in the cotton market—for example, a cotton converter whose principal gamble is: What is the cotton market going to do—you cannot take the return in his business and ignore that kind of risk and then say that this utility is going to pay the same for capital that he is going to pay or is entitled to make the same amount of profit that he is going to make if he is guessing right.

You ask me to assume that a man decides to buy cotton at 10 cents a pound; that he makes the decision which, I have said, may result in his losing money if it should go to 9 cents a pound. You ask whether the risk is made up of of the decision or the danger that it might go down to 9 cents a pound. The risk is made up of the situation that being in that business he must either buy his cotton to manufacture with, or manufacture and buy his cotton as of the day he sells. He must make that choice. That choice is a risk. You ask if it is the choice that constitutes the risk. Aren't you getting a little fine spun in that? It is that whole complex. He is in business. He must do one or the other. That is the risk that he has to take in his business every day of the year.

You ask whether or not in the sentence from the case of

Willcox *vs.* Consolidated Gas Company, 212 U. S., page 19, reading: "What may be a fair return for one may be inadequate for another, depending upon circumstances, locality, and risk", they are talking about internal decisions that the management may make. If they are talking about rate of return, they must feel that if you are going to compare utilities with non-utilities, that all of the risks of non-utilities must be taken into consideration and all of the risks of utilities must be taken into consideration, and a balance struck and a judgment made.

The risks of all utilities are not the same. To some extent it depends on the decisions of the management as to whether they are or not. Probably while decisions that are made by utility managements do not involve the risks of money to the same extent that they do in ordinary business, nevertheless, when the utilities in the State of Illinois decided to buy their coal from the Peabody Coal Company instead of on the open market, they took certain risks. They decided that they would pay a cost plus price which may today be lower than the market price and tomorrow higher.

No, the Illinois Commerce Commission, which has under its jurisdiction the gas company that employs coal and oil as raw products from which to manufacture gas, would not concern itself with whether they had or had not
1738 bought their coal in large or small volumes. You ask if they would concern themselves with whether they had bought their oil over long-term or short-term deliveries in arriving at a proper rate of return for the risk involved. First, in arriving at the allowable operating expenses, and, secondly, since that is a risk which the management must face, the Commission must give due consideration to that risk in appraising where, in the scale of returns that all kinds of capital earned, the company's return shall be fixed.

You start from the most riskless security known and you go up to the most speculative investment known. Where in that long range shall a utility's return be fixed? It shall be so fixed, as I understand it—and I am willing to concede it is primarily a legal matter—but it means an evaluation of all the risks of all kinds of business, all kinds of capital; then to what rate does this company's risks entitle it? They must appraise all of the risk. You ask if I mean by that that they must appraise all of the company's decisions. They must appraise the net result of all their

decisions, not each and every one, but how does this company operate? What risks do they necessarily have?

We must face, for example, that here in the City of Chicago management with sound business foresight built certain types of properties throughout this city. Certain areas around the loop have now become known as depressed areas. Now, that is the risk that the management had to take. At the time they built they could not foresee—I do not think it is possible for them to foresee. That is the risk the management has to take in Chicago.

When you are operating in a small town, for example, in territory like C. I. P. S., you are asked to build a line out to a coal mine, the risk that you take or protect yourself against is a risk of putting an investment in property to serve that coal mine. If the utilities do not want to take the risk, they demand a down payment or contribution for extensions from the consumer, which will relieve them from taking the risk.

You ask me to state in connection with the depressed area illustration that I gave what the risk was that confronted the owners of that property when they bought it. The risk was that they changed money into property by a decision to build, let us say, underground construction or 6-inch gas mains. Now, once that decision was made that money was ventured. That is the risk of that amount of money. The risk was that they might build property which subsequently they might have to tear up as being useless. It is the danger that confronts the man who has made the decision or who is considering making the decision that constitutes the risk. The danger is the thing which causes the loss, not the risk. Risking money is not to lose it. Risking money is to gain. You risk money in order to gain, not to lose.

Now, certain contingencies cause the risk to turn unfavorable and cause a loss. Change in the complexion of the city in this depressed area caused that to become a loss. Four blocks away the same risk was taken. No loss was incurred, possibly, because the consumers clustering around the neighborhood brought a very substantial profit about; but the risk was when they took the decision to build
1739 the property. You ask if they both did not take the same risk when they made the decision to buy the property. If the amount was the same, they took the same risk. One of them lost money and the other made money,

that is right. You ask which it was that was confronted with a risk when he made the decision, the man who lost or the man who profited. Both. The decision was the thing that constituted the risk, and you are compensating utilities for the kind of risk they undertake. That is one of the kinds of risks that a utility operating in large cities does undertake. You compensate them for the kind of decisions they must make, not whether they are good or bad, but the kind of risk they must take, that they cannot escape.

If you wanted to ship a quantity of gold from New York to San Francisco by Chicago, you could get Lloyds, or some comparable insurance company, to insure the safe transportation of this commodity across country. The risk that confronted Lloyds, if it happened to be the insurer, would be the possibility of having to pay you for any loss that was occasioned during shipment. You pay Lloyds a premium, and they take your risk. If you are in the kind of business where you naturally want money in one place moved to another, that is a risk that you take, just as often as that condition arises, that you cannot escape from. You can pay a premium and shift it to Lloyds. But I have in mind one particular kind of business, the diamond business, uncut stones, where the margin of profit will not permit present insurance rates, on the authority of a friend of mine in that business. The premium is so high that if he were to pay it, he could not possibly make any money. He therefore has to take the risk, including the risk of being held up and shot.

You ask if the decision to transfer gold from New York to San Francisco had been made last July, would it have cost the same premium as if made today. I do not know whether rates on shipment of gold between those places have gone up in the meantime. I don't know whether it would or would not cost more now. I think American rates of trans-shipment might very readily have remained the same, in spite of a war in Europe. I don't know whether that is true or not. I have not followed those kinds of insurance risks. I am talking about both shipment by water and by rail. You wouldn't ship gold by water. That is too expensive a proposition. You would probably ship it by rail, by the fastest express you can take, because quite a number of the fastest trains on American railroads are commodity trains and not passenger trains.

The risk that you take if you take ordinary life insurance is that you might pay for a good many years and ultimately

recover a smaller sum. Insurance people are not insuring you against dying. They charge a certain premium because they take the risk, and they pay a certain sum when you die or to your heirs when you die. They protect themselves against your going into professional aviation by providing for an increased premium or a cancellation of the policy. In other words, under those circumstances they evaluate the risk as different from that of an ordinary man.

Now you ask why I say that the risk is constituted by the decision. The answer is because business is a continuous series of acts of various kinds of various employees of the business concerned. In connection with those acts the management must make decisions. This decision is the kind of a risk they take. The risk is there before they make the decision. It is something they must do. Their only alternative is to take this sort of an out on the risk, or another sort of an out. The risk is there. They must risk that money because they are in business.

You ask if the risk involved in buying gas leases down in the Panhandle and building a pipeline from those leases to Chicago, drilling wells on those leases, and providing compression equipment for moving that gas from
1740 those leases to Chicago did not exist before the owners ever decided to go into the business. Some risk confronted them, if they had the capital to go into a project, as to what they are going to do with the capital, leave it idle, put it in government bonds, or do something else with it. At the time any one of these particular people began to engage in the natural gas business he undertook certain types of risk in a certain amount. You ask if I don't think that the risks that ought to be considered by the Federal Power Commission in arriving at a power rate of return were already there long before these men ever made up their minds to acquire leases of that kind and build a pipeline to Chicago and put gas through it. I can't see any risk that was there. I was alive at the time. I had no risk in connection with that project; merely the man who was going to venture his money into it, as of the day that he first ventured his time or invested his money in it. Then with respect to the amount of money he put in, he undertook certain risks. You ask, were not the risks which he found himself confronted with after he made his decision already there facing him before he made the decision?

When you say "Were not the risks that faced him after he made the decision," do you mean by that the risks that are now facing the defendant? When he made a decision to invest a certain amount of money in this project, he then risked that amount of money in the project.

Now whether that risk of money was profitable or unprofitable would depend on the gradual development of subsequent circumstances. The risk was taken. Now, from then on the risk that faces him is: Shall I hold on to this investment I have made, or shall I sell out?

You ask if I think that when a man or a group of men contemplate an enterprise that involves an original expenditure of $60,000,000 or more, that they are going to give some thought to the risks that are confronting them at the time they are thinking about it before they make up their minds to put their $60,000,000 in. I think now you are using risks in two different senses. The risks that they tried to evaluate at that time were, I presume, the possibility of getting their money back and making a certain return on their money while they had it out on this project. That is the risk which they evaluated as far as they could at that time.

Questions by the Examiner.

Yes, they do that by the process of considering and weighing factors which militate against their chances of getting their money back and weighing that against factors which enable them to get their money back and possibly a good return. You ask if those factors which they weigh, though they are of a negative kind, are not used to militate against the possibility of success in the matter of risks. You cannot take, in any business proposition, only four or five negative, as you call them, factors. You must take all of the factors. A business risk might have fifty negative and one good strong positive factor which outweighed the fifty negative, and a business might have fifty positive and one good strong negative factor which outweighed the fifty positive. What anybody must do in the appraisal of risk is to determine what is the relative balance of favorable and unfavorable symptons.

You ask if, in considering these factors which appear in some other industry, related, you do it by comparing characteristic factors in the two industries. If we were to make, as I was called upon to do, the appraisement of the

risks of this business and the return that it is there-
1741 fore entitled to, I would take as large a group as I thought was desirable for study and then appraise what are the characteristics, favorable and unfavorable, of risking money in this business, what are the characteristics, favorable and unfavorable, of risking money in another business. I would probably give a little more weight to those that were closer in characteristics. The rate of return at which I arrived would be about 6 per cent. That was arrived at by weighing the returns derived from risking money in various kinds of industries. I mean by that risking as an investor in those industries. In doing that I employed all of the favtors. You ask if I mean, eliminating common factors or grouping common factors and giving it weight and then giving the distinguishing element of my characteristic factors weight. My answer is "no." I gave consideration to all of the risks: How difficult it is to wind up at the end of the year with a reasonable profit in a certain line of business, and what kinds of profits and losses naturally do these businesses make.

If I were to take and compare the Natural Gas Pipeline Company with other natural gas companies, I would evaluate all of their risks, all of the risks of this company as against all of the risks facing the other natural gas companies. Then go from there to utilities and, ultimately, if I wanted to make a comparison between the Natural Gas Pipeline Company of America and industry generally, manufacturing and processing and merchandising industry generally, I must look at the risks that face manufacturing industries, merchandising industries, and compare those risks with the risks that faced the Natural Gas Company of America, and try to strike some kind of a balance between those risks, in order to effect a judgment as to how much more or less than those industries earn is the Natural Gas Pipeline Company of America entitled to earn.

But I cannot say that the risk that faced Chrysler, for example, with this strike, which has just cost them a large amount of money, that that is a risk which I must ignore. Of course, that is the very kind of a risk, when I look at automobile earnings, that I must take into consideration, that the automobile people are now faced with a labor problem, that the labor problem can cause them a strike that will cost them a great deal of money. Naturally, if they are going to take that risk, it must be compensated for, or they will all go broke.

You ask whether the labor problem is a risk. Of course the labor problem is a risk of industry. It is one of the basic risks facing all industry today, where the cost of labor is a very substantial amount of the cost of your final selling price.

Cross-Examination by Mr. Morgan Resumed.

You ask what decision on the part of the management does the labor problem risk depend on. A great many. Ultimately it might depend on a decision of whether to fight a strike or give in. You ask whether it is the decision that arises when the strike is immediately impending that constitutes a risk. That is a pretty late date to face that risk. They are facing that risk all the time. How shall we treat our employees? How shall we do it? The Chrysler strike was supposed to be caused by the speeding up of the belt line. It was that original decision—in order to make money and sell our cars for a certain amount we want the belts run to move so and so fast, otherwise we cannot make a profit or the profit that we ought to make on this car—having made that decision, to price their product at that particular set-up of prices, they then had to work their belts so fast that the men kicked and ultimately struck, and Chrysler lost a lot of money, variously estimated.

1742 You remind me that I stated in connection with my direct testimony that I had given effect to the particular risks that I mentioned here, which I said prevailed in other industries and did not prevail in these companies, involving questions of decision, such as the accumulation of inventory; and you ask if that is the character of risk that I appraised in arriving at 6 per cent as an adequate return. Yes, because where that factor is present to a great extent in a business, as for example in merchandising, they are entitled to a larger return because of undertaking that risk than they are if that is not present.

You ask what distinction I draw between risk, as that term is used in a rate of return study, and hazard of loss. I thought I explained that a while ago. Risk means what you undertake to do which may result profitably or unprofitably; but when you make a decision, from that time on factors beyond your control determine whether it is

going to be profitable or unprofitable. That is the risk that business in general is faced with, all business.

You refer to my statement at page 8038 of the record: "In a discussion of risks in business it is necessary, in my opinion, to distinguish between the continuous actions of conditions surrounding an industry and the continuous risking of money by the companies in industry," and to my further statement: "The first set of factors in general determines whether the industry will be profitable as a whole. The second set of factors determines the relative prosperity of the companies within an industry. The risks arising out of the continued commitment of money in a business are much more important than the risks arising out of the conditions surrounding an industry." You ask if I meant in those observations that the risks arising out of continuous commitment of money are much more important in a rate of return study. Of course I was leading up to rate of return, but I also mean much more important as an underlying factor of business. I was talking about industry in general. The one principal risk which the management or the entrepreneur in your property took in the first place was this: It cost $60,000,000 to build a pipeline. Is that justified by the amount of gas we have in the ground, taking into consideration the possibility of selling that gas in Chicago? They had a lot of other risks besides that one, but that was the one big risk, that was the paramount risk that they had, because if the gas was not there, if there was only enough gas for four years, you could not get $60,000,000 out to pay for your pipeline.

You ask if I meant by what I have said that having put their money in and built the pipeline, that the risks that are involved in the decisions which the management makes from time to time are the important thing, rather than the over-all risk running over the period of time that their money will be in the pipeline. I made that statement about business in general. Now, when we get down to the Natural Gas Pipeline Company, there are certain risks that the management is undertaking from day to day and from time to time. Every time they add a new interruptible customer on the line; every time they are faced with the question of shall we sell our gas to the industrial customer or shall we hold it for the residential and commercial consumer; every time they decide whether it is going to pay them to put in a new piece of equipment or whether they

shall let the old one run for a while with such necessary repairs as can be made; whether the wastage of gas is enough to warrant an investigation or whether it is small enough to let it run,—those are all problems of management, as to whether they shall put so much money into labor or material or undertake to supply gas to this person or that person.

1743 In your particular line of business the day to day risks are comparatively small, I mean compared to business in general. I think most any business man will bear me out that you have a much easier business to run than an automobile business, for example, or Marshall Field's, and companies of that nature.

Now, the risk surrounding your property as a whole, which was a factor in the first place, by today has had certain years of development. The money having once been risked, some of the bondholders have their money back or have part of their money back. The stockholder has already received his three hundred or four hundred per cent dividends on his stock. It does not owe him very much. It was a profitable venture, even if he never got another nickel on his common stock.

You ask if the fact that it has been a profitable undertaking down to date ought to be used as a means of discounting the risk that still confronts defendants. I think that should get some consideration. I am not saying that because you made four hundred per cent dividends that you are not entitled to any dividends from now on. That is a legal problem as to whether you are entitled to these dividends or not, but as to the man who originally said, "Let's put our money into this proposition," and put his money into the common stock, nobody can say to him at the present time that he made a bad investment. He has got his money back four times over and still has a piece of paper that is worth a lot of money.

Yes, defendants together have certain risks surrounding them. You ask if I took those risks into account when I made the comparison between the business and operation of these companies and other companies which I mentioned in my direct testimony. I took them into account. I gave them, I think, complete valuation. But I say that that type of risk is a smaller one and much less important one than the type of risk that faces somebody that is in the steel business or in the automobile business, and if I am

going to look at the rate of return made by people in the steel business or in the automobile business I must give full consideration to the fact that the Natural Gas Pipeline Company does not face anything like the risks that they face, in the matter of winding up with a profit at the end of a year, due to the activity of the management.

You ask if in determining risk it is necessary to examine into the matter from the basis of what will probably happen or the thing which might happen to a business of this kind. The thing that will probably happen gets most of the weight. I think every eventual contingency should get proper consideration, every contingency facing this as well as every other business. When we are talking about compensation for risk in connection with an investor, we can in part talk about probabilities, things that we can see down the line that are going to happen in all probability.

You ask if I think anybody would invest his money in a venture if he thought there was a probability that that investment was going to fail by reason of some contingency. Yes. You say his investment might fail, but people are buying stocks on the stock exchange right today at fairly sizeable prices that have not made a profit in a great many years, in the hope that maybe it will turn around and make a profit for them some day.

1744 Now the probability is that if you pick any one stock, you might in all probability make a loss, but the hope that these investors have, is that "if we pick five stocks and one of them comes through with a profit, we will have enough to compensate us for the money we risked in all five out of the one venture that turns profitable," and that is the reason you will find stocks on the stock exchange that have had losses for a great many years still selling for dollars per share.

When an investor is thinking of buying or not buying a certain stock, the risk that he appraises is: What are my chances to get my money back and a return either in the interim or an appreciation at the end of the period of time?

You remind me of my testimony on direct that "the risks arising out of a continuing commitment of money in a business are much more important than the risks arising out of the conditions surrounding an industry. The latter are slower and can be met over a period of years." You ask that we apply that principle to the railroad industry. You ask what major risk confronted the man who put his money in railroad securities, particularly common stock securities,

twenty years ago. If you are going back twenty years, one of the major risks of investors was the honesty of management. Now, as far as the railroad industry itself is concerned, one of the risks that they faced at that time was the ability to overcome the change in the transportation habits of the American people to the automobile and away from railroad travel. You ask whether they have overcome that risk over the years or whether it is still with them. It is still with them. You ask if that risk has reacted upon their returns and upon the yields of their securities. To some extent. I think that the railroads that do a great deal of crying about the things that affect them are to some extent to blame themselves for not recognizing the factor of obsolescence and depreciation in their accounts, and continuing to pay dividends instead of plowing it back into the modernizing of their property. It was only at the very depth of the depression, the very worst time they could pick to gamble their money in the railroad business, that they started with streamline trains and new equipment. Up to that time the cars were run and used just as long as they could use them; the oldest equipment was still kept alive.

I think today the railroad industry might be in for a new lease on life if they would wake up to the fact that they are running an industry. They have to face industry and its problems the same as any other business man. They have to keep their equipment up to snuff if they are going to compete with airplanes, and buses and trucks. I think if they keep alive to that problem they can still come out; but if they are going to sit back and say, we want an increase in freight rates, or we want an increase in passenger rates, I think they are headed for the ash can.

You ask what investors think of railroad securities at the present time. Well, right at this time there has been a spurt in railroad securities. Prices have gone up. They hope even second class railroad bonds will earn their interest this year, and maybe that the railroad industry will come out. I think that by and large today's prices are a pretty good reflection of the status of the railroad industry and its chances for paying out on today's basis. As to whether they will ever be able to pay out on a 100 per cent of their capitalization, I think it will take a pretty strong optimist to express a favorable opinion on that subject.

1745 You ask if the great hazard or risk involved in railroad investment today is not the bus, the truck, the private automobile, and the airplane. That and the way management conducts its business. How many trains are they going to run? We get, in the Illinois Commerce Commission, railroads coming in and saying, "We want to take off this train, we want to take off that train." We have railroads going down to Washington before the Interstate Commerce Commission saying: "We want to make an increase in our freight rates. It is true we will lose a certain amount of business, but we think we will be better off over-all." I think as long as railroads stick to that kind of thinking there is not much hope for them, because I don't know of any industry that can make money by charging more and selling less of their product. I only know of industries who can make money by charging less and selling more of their product.

If the railroads try to give the best service that they are capable of, at the lowest price, and move America's commodities, I think they will be in the money again; not at capitalization, but what I think they are really worth. It is not that they could or could not have done it but just that they have not overcome the hazard which confronted them twenty years ago from competition. I think they are very slow in realizing the effects of that competition. We know that for years the railroads uniformly refused to have anything to do with bus and truck transportation. They would not go into the bus business. They would not go into the truck business. Today most of them own bus lines and truck lines.

You ask if I think that the trouble which has resulted as a consequence of this decision that I have been criticizing here on the part of railroad management is the kind of risk that ought to be taken into account in fixing the proper rate of return for an industry, or whether the compensation should be on the basis of the risk involved in the competition from buses, trucks, private cars, and airplanes and other competing transportation facilities. Well, how is anybody going to appraise that risk without giving full consideration to what the management has done with those risks that the companies face? You ask if I am going to have the regulatory body substitute its own judgment for that of the management. No, no, but it has to see what the management has done, and what the result of that has been. This management has done certain things, faced

certain risks, and there was a certain return, they were making 12 per cent on their money. Here is a management which may be making 45 per cent on their money. I know that if there is any business in which men can engage and make 45 per cent on their money, there would be such a rush into that business there would not be any money to make in a short while. There is no such business, because capital would compete.

Now, what I say is, what the Commission is to give consideration to is: "What return does an industry make which faces a certain kind of risk"; then plot all of those on the scale; and if on this scale of risks this business falls here or there on the scale, then the returns of the business fall there. You weigh all the risks of business. You can't pick out three of these, say, three substantial risks of the natural gas pipeline business. Let us say we have an earthquake in the St. Louis area. I don't know how near that got to your pipeline; but certainly, if there was any indication that there was, generally speaking, an earthquake area around there that might destroy your pipeline, that is, break your pipeline once every year, you should be compensated for that risk one way or the other, whether that is effected by way of compensation or in the operating expenses.

1746 You ask if I mean to say that I don't know what risks confront defendants. I thought I made a pretty good evaluation of it. I merely said I did not know about this recent earthquake. I did not investigate how close this recent earthquake got to your property. No I did not say that earthquakes are the only things that break up pipelines. You ask if I think there are any other factors that might result in the parting of that pipeline between here and the Panhandle area of Texas that ought to be compensated for in the rate of return. Either in the rate of return or more normally in the utility industry, if they are normally recurring in more or less large intervals, in the operating expenses. Utility companies have to face that problem. For instance, the telephone industry in certain areas of this country is faced with sleet storm damage which periodically will knock down a large part of their lines. Well, usually the Commission says, "We will fix your rate today, and the sleet storm damages may be amortized over a period of years"; which seems reasonable when and if they occur at more or less regular intervals.

When your company had a break in the line almost two years ago now, the cost of rebuilding that line was paid for by the company; and some part of it got into the operating expense. If there is some of it allowed in the operating expense, then you are not entitled to it over again in the rate of return. If there is any such factor which deserves compensation, of course, the Commission will give it whatever consideration it deserves. Commissions have to face that problem over and over again, and they do what is adequate and reasonable and right to do under the circumstances in the case

You call attention to my testimony at page 8039 of the record reading: "One of the continuing risks that faces industries other than the utility industry is the conversion of cash into inventory." You ask if that is the kind of risk which I think regulatory bodies must take into account in arriving at a proper rate of return. If they are looking at the return earned by companies which face that risk to an important extent, of course they must discount the fact that this company does not face such a risk. You then call my attention to my testimony in the same connection that: "The size of inventories varies with the industry and with the company but in general constitutes a major portion of the invested capital of an industrial company." You ask if I am talking about dry goods stores and clothing stores when I make that statement. I mean steel companies, copper companies, the automobile industry. I didn't say inventories constitute their main fixed investment. I said a major portion. It may run anywhere from 25 to 75 per cent, or maybe 90 per cent, of their entire capital. I mean all of the inventories: raw materials, supplies in process, finished products. By inventories as I use that term here I mean merchandise, goods of all kinds, goods which have to be sold, those which the particular industry is selling or using.

I am assuming here that there is not to the same extent such a hazard confronting these pipelines when I say they are not confronted with that risk. They are not confronted with it to anything like the same extent. You ask to what extent I would say that they are confronted with that risk. Well, they have some problems in their materials and supplies that they are required to purchase. These particular companies are also in the gasoline business; they have been storing gasoline over a period of years to a certain

greater or lesser extent. As the size of that inventory
1747 goes up you take on more of that kind of risk; as it goes down you take less. On the whole, however, the amount that you have in inventory is a very small proportion of their entire investment; whereas industry in general, particularly those industries which are making substantially larger returns than six per cent, are industries which have large amounts invested in inventories.

You ask what the ordinary merchant or manufacturer does with his inventory when he finds himself with more goods on his hands than he can sell for the moment. He must have an inventory to stay in business. A man can't stay in business without inventory. Now, the inventory of the average concern, even a manufacturing concern, consists of raw material, supplies, merchandise in process of manufacture, finished material, and finally, let us say, packaged goods.

Now, he has to accumulate that inventory in varying proportions in order to meet the day by day demand. That is a risk. If the price of his raw material falls, he can't sell at the cost of production to him; or certainly not the cost of production that he counted on. If it rises he can make a good sized profit.

When you look at the returns made by the manufacturing industry, you must take into consideration that part of those profits were made because they took this risk. I read here recently of a company in the jute business that made more profit from their inventory on account of the rise in price due to the war scare than they made in six years. Now, that was a risk to the man who bought that jute inventory from them, who wanted to stay in the business and was afraid he would not get a substantial supply.

The scrap industry, which is a major part of the steel and iron business, faced the same situation. The prices of scrap rose very rapidly. They have tarted to slump off now. The man in the steel business had to make up his mind: Will I buy scrap at today's quotations for my future supply; or will I gamble that I will be able to buy it cheaper a few months from now? The man who bought at the top of the peak will have smaller profits than the man who did not buy at the top of the peak. You must take that into consideration when you look at the returns of a particular steel company. What risks did they take?

You ask what defendants have to sell. They sell natural gas. They get it from the ground, and they have wells that

they have drilled in order to give them a supply sufficient to meet the demand at the Chicago end, or at the Joliet end, of the pipeline. You ask when they got it. Some leaseholds were bought rather recently. Most of them were purchased or acquired in 1931 pursuant to an earlier contract. Some have been bought subsequently in order to round out their holdings and get them in the shape they wanted them. You ask if I don't think that natural gas which they bought there in a reservoir and have owned for the last eight or nine years is a considerable inventory of what defendants have to sell. No, not when you are not faced with a fluctuating market. If the price of that gas were determined by factors beyond your control, then it would be a risk, but if the price of the gas is subject only to the operations of a regulatory body, then you are going to make a fair return on the fair value of your investment and there is no risk.

1748 You ask about the thousands of owners who have an interest in that same reservoir who are working on the same aggregate inventory down there. There would be a risk if a man owned a lease old and had to pay a rental on it and had no way of getting his gas out of there and selling it. You ask about the situation of the man who is taking as much gas as he can, but he can only take a small part of that which he has. After all, if he is taking out all he can, that is all he owns in the reservoir. He bought what was down there on the possibility that he could take it out. You ask if he didn't buy a certain quantity of gas down there when he bought the leases under which that gas is located, and if he isn't confronted with a risk as to whether or not he is going to be able to produce that gas and sell it, or whether somebody is going to do it before he can get around to it. I think in the natural gas industry, where the field is such that gas can be readily tapped away from one lease to another, that if an operator is in position where he is unable to get all that he might get, that all he owns is what he can get; the other belongs to the other man who can get it. Now, my experience in the natural gas field, I have known places—oil, rather, which is similar to natural gas—I have known men to drill wells very close together in order to get it out as rapidly as possible, because they own all that they can get out of the field, and not one gallon more. You don't own one cubic foot of gas more in that reservoir than what you can get out. You own what you can get out.

You ask whether that is my conception of what the law is down in Texas. That is my conception of the economics of that business. The law is something that I can't tell you anything about. I am not a lawyer. How much you can get out depends on how many more are down there getting it out and at what rate they are getting it out. You ask if, when you go down and spend $15,000,000 for gas reserves, you are not taking a long chance as to how much of the gas you are going to be able to take out of the field. I presume you are weighing the chances that you take; that what you do say is that you can get enough gas out of that field not only for your $15,000,000, but for everything else you have to spend in order to get that gas out; and the amount that you have to get for that $15,000,000 is the amount you are going to get out. It is more or less an industry which probably cannot be evaluated to the cubic foot or to the dollar; but you know within certain limits how much gas you are going to get out. If you don't know, I don't think you have a right to risk $60,000,000 in getting that gas out.

You ask if anyone in 1926 could at that time have predicted with any reasonable certainty as to the rate at which gas would be taken out between that year and 1936. They could not. Nobody knew at that time how many pipelines would be built, how many gas wells would be drilled, how many carbon black plants would be erected, how many gasoline stripping plants would be erected, how many oil wells would be drilled, how much gas would be used in the production of oil. You ask if that same uncertainty isn't confronting the owners of gas reserves down in the Panhandle today. I am not saying that there is no uncertainty. I am not saying that there is no risk. I am merely trying to get that leveled off to some kind of a measure, on some kind of a measuring stick. The question is: How much uncertainty, how much risk is there? Now I presume that in the figures I have dealt with here that the company says: "Here is an amount of gas, and we have a reasonable and safe expectancy of getting it out of the ground."

I presume they said that. You ask if that is what
1749 they said in their testimony or through their witnesses. I did read some place that you said there was a minimum and a maximum. I don't know whether you said minimum as much as you said maximum; but I would say that from the way I look at this picture and from what I know about this business, I think that there is a

reasonably safe figure to use; that that is what you are going to get out of this proposition.

I appraised that risk in arriving at my 6 per cent return and considered it carefully. You ask what elements of that particular risk I took into account and analyzed. Well, the risk that originally you put in this amount of money, which I looked up at that time; and what has happened to that investment in leaseholds since then; what returns you have made since then; what your future outlook is as set forth in Company Exhibit 141 and other exhibits; and from the fact that these figures that have been presented, there is a reasonable expectancy of what the company can do; and that on that basis how much risk does the company take?

Now, of course, you are probably taking the risk that somebody might get down there and do "wild catting," and drill this field wide open, and be able to get around the regulations of the Texas Commission that regulates the natural gas industry, and strip it down very rapidly; but I think that is a comparatively small risk. You ask why I think that. Because the conservation efforts of the Texas Commission have been such that they have begun to hold down this particular project; and primarily the fact that your witness admitted that there would be natural gas which you would get out until 1954. I think your witnesses testified to that effect. You ask if they did not say that there was a certain quantity of gas down there, and if certain contingencies, which they enumerated, which might operate to reduce the quantity of gas which could be recovered did not take place, that as a maximum length of time it might last until the year 1954. I think that your witnesses should have gone one step further and said that the minimum should be so much. I think the maximum was pretty close to the minimum, as I remember the testimony. I did not read it word for word. I think he was willing to state that you could get this much revenue out until 1954 on this proposition. I forget which witness testified to that. I read quite a number of them right together. I forget his name.

You ask if I am sure that any witness said that. That is the impression that I got out of his testimony. You ask if I appraise that risk as to the quantity you will get out of the field in the light of that impression. I appraise the risk this way: That if the Commission ultimately decides that 1954 is a reasonable expectancy of life of this propo-

sition, and if they have given you a reasonable value on the gas you are going to get out between now and 1954; in the light of those two judgments there is not very great risk left.

I know that oil wells are being spotted all over that field down there, particularly in the east end. I know that every oil well drilled wastes a lot of gas and uses a lot of gas. I have also been told that there is a pretty good working arrangement in that field between the companies exploiting that field. There must be an increased number of oil wells being drilled. Every time an oil well is drilled, that gas reservoir is tapped and more gas is produced. No one can determine at this time exactly how many oil wells will be drilled down there next year or in future years; but geologists have estimated the life of fields. In my experi-
1750 ence, if they are real good competent geologists, they are usually low. I presume that is a matter for you to substantiate before the Commission. And after all the testimony is in and the Commission has decided that there is so much gas that you are going to get out of the ground, and what the value of that gas is in the ground, which you are going to get out after so many years, and what is the reasonable length of time for you to take to amortize it over the life of the property; then if they appraise that, there is not a very large risk for you to be compensated for. You ask if that doesn't depend on whether or not the rate of withdrawal actually proves to be as they determine after doing the very best they can about it in the light of a possible or probable different history of that field in the future. I would say this: That if the Commission were inclined to view all of your evidence and the evidence of Mr. Brown and decide that the life of this field is going to be 35 years, instead of 16 years that you claim, then there is a bigger risk attached to your business than if they found it was going to be 16 years. You ask if I mean to say that there would be a bigger risk in following Mr. Claude Brown's testimony than that of Mr. Peterson and the other geologists who have testified. Not risk in following the testimony; but every year you put it further away, the bigger the risk; just the same as if you bought a 35-year bond there is a bigger risk than if you bought a 30-year bond—five years longer risk; the limit of the risk goes further. When you appraise that risk you have to take into consideration the length of time. You say that 1954 is going to end it; you are done.

You ask was it necessary to testify that it won't last that long in order to have a risk injected as to whether it will last that long. That question relies on the risk, not that this will have a longer life. You ask if the carbon black industry doubles its activities in that field and commences to take a billion and a half instead of seven or eight hundred million cubic feet a day, what effect that would have on the life of the field. That would shorten the life of the field as against the original estimate. If you want to ask me that question, my answer must be: What did your witnesses take into consideration? How did they evaluate all of these factors? Now, they certainly did not sit down and say we are going to stop at this certain particular point, and everything is through. I presume that what they have got is the point at which their evidence reduces the risk to a minimum, where there is at least a certain reasonable expectancy of getting this much out of the project. Otherwise, why didn't they come in and say 1950 or 1946? I presume the reason they came in is, that they said—we can substantiate this thing—that it will last such a length of time. I presume the reason they picked 1954 is that there is at least a safe and reasonable expectancy that this business should last that long;—and if a witness testifies it will not last that long, he will not stand up under cross-examination.

That works both ways. This property may last longer than 1954 or less long. I say on the basis of the evidence that is in here, as I have been able to interpret it, which I find in the record presented by your witnesses, that it will last until 1954 and produce a minimum amount of gas; that the testimony gives a reasonable standard that your property will last that long and will produce 164 millions of revenue in that time.

You ask how investors in dealing with the securities of these pipelines would view that matter, that is, if they would be willing to trust their money in bonds that would extend until the end of 1954 merely because any commis-
sion in the exercise of its best judgment thought the
1751 field would last that long. I think that they would be
much more willing to follow the findings of the Federal Power Commission than they would of some company geologist who said it would last a certain length of time. I think one of the reasons why the natural gas and oil industry is in bad with the public as far as public financing is concerned is because of the extravagant valuation of the

leases, the extravagant estimates of reserves which are about to be exploited, the extravagant estimates of the amount of gas which can be recovered. If you give the people a sound, sane, reasonable judgment on all those factors, you are reducing their risk. I think that if the investor should find that the Federal Power Commission in deciding this case, if it found that this property is going to last 16 years, he would say, "Now, I think that is a pretty safe place for my money"; especially if you read some of the other prospectuses, that have 25 years of life in them. There are bond issues of natural gas companies that are in part exploiting this very field which have gone beyond 1954. I think if the estimate was 25 years and we have a bond issue for 15 years, he would be more willing to take the risk. Naturally, if the risk is longer, he is willing to put his money in for a shorter period. He will reason it is a safer risk. He will say: "All right, if you say that property will last 25 years, I will loan money up to 15 years. Ten years from now I might loan you money for another ten years."

You are not going to get a bond buyer to loan you at 3¼ per cent for a period up to 1954, but you can at 3¼ per cent on bonds that run that much shorter. You ask if he would take bonds over the whole period to 1954 at 4 per cent. You can get to a point where he would do it. You ask where I would get to that point. I will give you an answer on that tomorrow. Give me a chance to think that over. I must take into consideration quite a number of factors. Of course he is not going to advance his money on bonds running clear over the indicated life of the field at the same yield that he would if he is leaving himself a margin of ten years in there. I said he would find the yield so much. He would take it. Whether you call it bond, stock, or promissory note, the piece of paper isn't going to make any difference. For a certain amount of money you can get people to give you almost anything today. You ask if that is because I think the representations or predictions as to the life of the field that are promulgated in connection with these bond issues are often extravagant. I said that was one of the reasons why investors have disliked buying oil and gas securities. In this particular case I feel the Commission, having a thorough airing of all the factors applying to the life of this field and complete information on the life of the field, and also having complete information on the value of the property, are going

to fix those two things. Now, as they fix those two things, if they fix them at a place where the life of the field is of reasonably sound expectancy, they have reduced your risk to that point.

I had to make a certain assumption. I had to make the assumption I was testifying on rate of return that was going to be on the basis that your property was being valued by the Commission, that its amortization was being fixed by the Commission, that its life was being fixed by the Commission, they would have everything else, and after they got all of those things settled in their mind, and, justly, because otherwise you are entitled to relief in the courts, on the fixing of the rate of return, at that time, I say, there isn't very much substantial risk.

1752 You ask if there is not the risk left there that, by reason of an increase in production from the field by parties competing for that production, it might not run as long as is now indicated to the Federal Power Commission from the evidence before it, even though it does the best it can to arrive at the probable life of the field. The answer to your question must be yes, because you are assuming that there must be some additional risk. Of course, there might be some slight additional risk, but I say after the Federal Power Commission has gone through all of the evidence in this case and has reached a sound decision, one which will be corroborated by the courts, as to the life of this field, that by that very process you have 16 years to go and you are going to get 164 million dollars. I presume they are not going to decide it will last for 16 years if there is not gas enough to last that long. You ask whether they can know that. Aren't you giving them all the evidence that bears upon those factors? Aren't they assigning their own experts to find out all the evidence?

You ask if there isn't always the danger and the hazard that, by reason of increased cost of production or formation conditions that will put wells out of commission after it is too late for them economically to drill other wells, and on account of increased production of gas by those who are competing, namely the oil producers, other pipelines, and the carbon black industry, you won't have enough gas to last out the length of time the Federal Power Commission, in its wisdom and exercise of the very best judgment it has, believes now the field might last. It may be some slight risk on that account. I think it is a slight risk. If it is not, let's have some information. I am assuming

you have all the information in the record on which the Commission is to fix the life of the field. I am assuming they are going to fix the reasonably sound life of the field. They are not going to arbitrarily say 40 years or 25 years, when the evidence shows the reasonably sound life of the field is 16 years.

If the reasonably sound life of the field is 10 years, I presume the Federal Power Commission is going to fix 10 years and you are going to have amortization for ten years, and having fixed the reasonably sound life of the field the risk left is negligible. I have made whatever compensation I thought that risk was entitled to in the rate of return which I have expressed here in my judgment as the proper one. You ask how much compensation I allowed for that risk. I didn't evaluate just that way, by taking each factor of risk separately. I regarded that risk as of small though not negligible consequence. I didn't say the weight I gave it was negligible. I said the amount of risk, I think, is negligible. I wasn't holding you to a minimum of 6 per cent return. I think that is a very liberal return. I have plenty of leeway in my return. Yes, I think I am giving a liberal return when I say 6 per cent. I have given predominant weight to the fact that there is a war on and I didn't know what investors were going to get.

(December 6, 1939.)

You ask if in my direct testimony I did not undertake to distinguish between the risk surrounding an industry and the continuous risking of money by the companies in the industries, which, for the purpose of the succeeding questions, we will abbreviate as external and internal risks. That is a satisfactory distinction to me, of course, if it is understood by external risks we mean conditions surrounding an industry and by internal risks we mean risks
1753 arising out of the business process itself, a process whereby a business makes or loses money. My statement was in brief that those within the business, arising out of the transactions of the company under consideration, are the important ones as compared with the risks surrounding an industry. I said later that those surrounding the industry are slower and can be met over a period of years. That is not true of all industries. It is a generalized statement.

You ask me to give you an illustration of what I mean.

Well, I mean by that statement the gradual replacement of a product by a substitute product. Let us take; for example, one that might be operating at the present time —I don't know how large it is—but the gradual replacement of silks by the new fabrics being developed by the chemists. That does not happen all of a sudden. That is a slow process. The management in the silk business sees it coming and can make to a certain extent provision for it.

Another type would be in the extractive industries; the gradual depletion of a certain ore; not the particular ore body of one company, but a whole field of operations, which ultimately means that business in that section is going to be removed.

I am thinking now of certain of the coal fields in the Pennsylvania neighborhood; for example, around Rich Hill, Pennsylvania; once a flourishing community in the coal field; with merchants doing business in that town, railroads operating to that town. Gradually, as all of the mines in that neighborhood became depleted, all the industry moved away, and today there is nothing but ramshackle buildings left to gradual destruction.

That did not happen all of a sudden. People operating that property saw it coming and made provision for it. Your own company will face that risk, and make provision for it by setting up adequate depletion; by, towards the end of the property, not maintaining your properties to the full extent as if they were going to run forever; and take other precautions.

Now, this kind of external risk, as you use the term, operates slower. They are not like fluctuations in the market price of raw materials, which affects the sales price of your commodity in the immediate future.

You suggest that we apply this principle and doctrine to the traction industry and ask whether the risk surrounding that industry was overcome over the years or whether it finally submerged the industry in a great many places. Well, it was seen coming over a period of years. Ultimately, of course, the industry goes out of business, whether it is the individual company or the entire industry. It takes a long period of time. During that period of time provision can be made. Certain street car lines were compelled gradually to change over to a bus operation.

The Evanston Street Railway, for example, operating under the jurisdiction of the Illinois Commerce Commission, because they had the foresight and prudence, were able to pay all of their bondholders one hundred cents on the dollar; and their stockholders still have for the money that was not returned through liquidating dividends a good going business, returning excellent dividends in my opinion.

1754 Now, the fact that some people in the traction industry have been pigheaded about trying to run a street railway in a small town where it is uneconomical, and where the bus operation is much more economical, and have allowed somebody else to take over that bus operation, does not change the fact that it is a slower risk than the ordinary risks of a man in the steel business or the automobile business, or any other regular business, non-utility; and that to a certain extent it can be overcome. Whether it is or not, of course, has nothing to do with my application of that principle. The fact that management may be pigheaded and refuse to recognize obsolescence and depreciation—

You ask what is the attitude of investors toward putting their money into a business like a traction company as that industry has been situated since the advent of the bus and automobile. Well, there is a security market where shares and bonds are being sold—at discounted prices, it is true; and if some investors feel that the present prices are too high, they sell. If others feel that the present prices are too low, they buy. You ask whether it has reacted to increase yields on the investments of those who are willing to put their money into that kind of business under the circumstances which confront that industry. I think there are speculative profits to be made in the industry. They are speculative, of course, and therefore, if the profit comes, it will be large. Most of the people will take losses. For that reason, those who put their money in require high yields. That is true of every industry which has facing it its ultimate extinction by competition or by the exhaustion of physical resources.

You ask if an industry is confronted with a short life which can not be definitely determined in advance, whether investors take account of that circumstance in the yield demanded for investing in the securities of that kind of

business. They will take account of that in two ways: First, by seeing the amount of depreciation, depletion, and amortization which it sets aside; and then, if that is not sufficient, by yield. But if, in their opinion, the depreciation, depletion, and amortization is enough to restore to them their capital before the end of the project, then they will not require any additional yield.

A bondholder who is getting, let us say, a yield of 3½ per cent, would want more safety than a stockholder who is getting 6 per cent. You ask how long before the expiration of the uncertain terminable life would he want to get his capital back into his pocket. As soon as he can get it, naturally. But I think that where an investor would sit down and say, here is an uncertain life; the company is setting aside such and such amount for depreciation; he would then try to make up his opinion on what that life would be. If he thought that there was a good chance that it would run beyond what the depreciation and amortization called for, he might then be willing to take a comparatively small return on the gamble.

If there was a reasonable expectancy that the company was not setting aside enough, he would want a big return, or he would want to buy his securities at a liberal discount.

You ask if in the case of a natural gas company it isn't also possible that the life of the source of supply will be exhausted prior to the time indicated as of any particular time when we are still looking into the
1755 future. It is always possible that it will be shorter than the estimate, unless that estimate is unreasonably short; or longer than the estimate, unless that estimate is unreasonably long.

In my experience in Kane, Pennsylvania, where they dug some wells which were drilled in the 90's, and allowed to run to air—gas wells allowed to run to air for a period of years, then turned into the lines serving Kane, Pennsylvania; they are still producing gas. They are pumped on a vacuum, but they are still producing gas. They have a very tight sand. Now, every geologist, as far as the records show to that time, that made any estimate of the life of that field, was low. It all depends on your estimate. If your estimate is extravagant, there is a big risk if you are going to follow that estimate.

Questions by the Examiner.

You ask whether, when I refer to Kane, Pennsylvania, that is a typical case in my estimation and whether I find estimates always low, so low that there is no possibility of the extinction of the field. No, the possibility of being high or low depends on two things: No. 1, the kind of estimate that is made; and, No. 2, the gradual change that is made in investigating your estimate. Just because an estimate is made today that this field will last so-and-so many years does not mean that there is a risk if it happens to run out in a year in advance. The very fact, as Mr. Morgan referred to yesterday, of additional people drawing from there, is known to the management when that happens, and you have a period of time to adjust for it. It does not necessarily mean that if the source of supply goes out in 15 years instead of 16 years, that the company is bound to make a loss. Of course, there is always a possibility that an estimate is too high or too low, if it is an honest estimate.

Cross-Examination by Mr. Morgan Resumed.

You ask whether any investor dealing with the securities of a natural gas company whose source of supply was the Panhandle field wouldn't be confronted with a risk that, for some reason which we cannot foresee now, it might run only 12 or 14 years instead of 16 years. I think an investor faced with a decision of the Federal Power Commission, founded on a complete study of the facts—company evidence and Commission evidence—would be more inclined to look upon the possibility that that field would last beyond that life than he would to look at the risk that the field would not last as long as the Federal Power Commission said it would.

You ask on what basis would he figure that it might last longer than now indicated. On the basis that the balance of the factors that are in play center around the period that the Federal Power Commission actually chose; that they probably were reasonably conservative in their opinion; that, therefore, there should be at least as many chances for the field to last longer as there are for the field to last shorter, and if the Federal Power Commission renders their decision, I think that that will be true.

Therefore, since most estimates to which a Commission would give weight are founded on what is known to be there, and there is always the possibility that there is more there than is known to be there, I think that most investors would be inclined to consider that there was at least an attractive speculation in the proposition that it would last longer than the Federal Power Commission has said.

1756 You suggest that we assume that the amount that is there can be definitely ascertained and that that is the amount that the Federal Power Commission finds to be there, and then ask if there isn't still a chance that it wouldn't last as long as it now looks like it might, in the light of what they had before them concerning those who were taking gas from the field. If you are merely stressing the point that there might be such a possibility, the answer is yes. That possibility is a risk. There is also a chance, but how much of a chance; how much of a possibility. What are the factors on the other side of that possibility? You ask how many pipelines have been built out of that field in the last 16 years. I think I have a recollection of five. I think that is all. There might be nine major pipelines and a lot of little ones that have been built from that field and a lot of smaller ones. I do not know how many carbon black plants have been built during the last 16 years. I do not know how many gas stripping plants have been built there during the last 16 years. I do not know how many oil wells have been drilled there in the last 16 years. I do not know how much gas has been produced in connection with the production of oil in the last 16 years.

You ask if I think the Federal Power Commission or any other human agency looking at that picture 16 years ago could have foreseen the total volume of gas that is now being taken out an that has been taken out during that 16-year period. I know that the Illinois Commerce Commission in 1933 had this very situation before it and reached a decision at that time on the life of the field, and on the basis of their decision the investor now finds that the life of the field is longer, in spite of all these things that have happened in the intervening period. If by your question you mean that they could have set down exactly the figures which happened and actually did happen, the answer of course is no, but if you mean by that

that a commission with all the then known facts before it could have given a decision which would have rendered substantial justice to the company, the answer is yes, and I think commissions will. Otherwise, you are substantially saying that regulation of natural gas companies is an impossibility.

I have no intention of denying that there is a possibility that the field will not last as long as the regulatory body thinks now it will last, after doing the best it can to get at the facts. I imagine that now there is a great deal more known about that field than there was in 1933 as to its extent and as to its productivity.

1757 A great many wells have been drilled around the field from which they have determined rather definitely the extent of the field. I am aware that wells have been drilled over the area to the extent that they have located unproducing areas within the outside limits of the field. You ask how many dry holes have been drilled within the outside limits of that field. I have a record of what defendants have produced and that is all. I know of one area within the field that is definitely known to be unproductive for some formational reason. That is in the eastern end of the field, and it is shaped horseshoe on the top and straight line across the bottom, substantially. I think that is over near the middle of Gray County. I have made no investigation as to the geology of this field, as to its resources, its life, or any of those things.

As I recollect it, Mr. Morgan was directing a question to me as to the possibility of a commission on the basis of facts now known reaching an estimate which would, or at least to the required legal extent, remove the risk from the investor, and I said that the Illinois Commerce Commission in 1933, when much less was known about this field than is known today, reached an answer, and that answer turned out to be low, showing that they did not step out and pick a period for the field so far in advance that the investor was put to an undue risk. I know that a great deal more is known about the extent of the field, the productivity of the different portions of the field, and the unproductive portions than was known in 1933. Therefore, there is more data from which to estimate the content of that field than was there in 1933. If you are directing your question to the exactitude with

which a commission can determine the life of the field, then, of course, there is always a chance that they will be wrong, but I, as I think I stated yesterday, made the assumption that the Commission and the Examiner in weighing the evidence, which I have not weighed, will reach a life of the field which will put no new risk upon the investor. I think that is presupposed in this whole process. You ask what it is that is going to determine how long the field lasts if we know how much gas is there and know it definitely. To practically the largest extent, the maximum, the most important factor would be the rate of withdrawal; and the economic level to which it could be produced is another factor that would enter into it; and how much of that gas can be gotten out without causing trouble, without bringing in water.

The operators are not going to take it out any longer than they can do it profitably. They are going to try to make the greatest amount out of this natural resource that they can. I will accept as a fact on which to predicate my future answers the statement that the oil operations in that field are still in a process of development; that additional oil wells are being drilled down there from time to time. I do not know now, and no other human being can predict, how many oil wells are going to be drilled in that area in the next sixteen years before that gas is exhausted. Unless you know those things, even though you know how much gas is there, you cannot know whether it is going to last as long or as short as would be indicated by the present rate of withdrawal. Of course, I am perfectly willing to admit that any statement based on any set of factors might be one which would result in placing too long a life on this property or too short a life on this property. I insist that any investor, and I, in putting myself in the place of deciding how much an investor should earn, am working on the assumption that the balance of all of the factors which deal with the life of the field will be so weighed by the Commission that there is at least just as much chance
1758 that the field will last longer as there is that it will last shorter.

I think that a group of investors looking at the same proposition would reach different results. One would be inclined to say that the life of the field is longer than the one indicated and buy at a level. Another would say that

the life of the field may not be that long and would refuse to put his money in at that price. But I do not think that we have a right to assume in discussing the rate of return that this company is to be entitled to earn, to assume that there is a large substantial risk from this factor. I have not assumed that there is any large substantial risk in arriving at the result I stated in my direct testimony. I have taken into consideration the fact that there is some risk in this business.

I know that some years ago two pipelines were built from the field down in Indiana to Chicago. I know very little about the situation. I know that there was a pipeline which the Peoples Gas Light and Coke Company guaranteed a bond issue for and ultimately had to pay on the guarantee. I am not acquainted with the exact nature. I have in the course of discussion with certain people been informed that the venture was not a loss, that it was substantially profitable, although it looked like a loss, due to the fact that at the end of the proposition the Peoples Gas Light and Coke Company was called upon to pay a very substantial amount of money to relieve themselves of the commitment they had undertaken when they had guaranteed the bonds. I don't know whether there was a profit in that transaction or not. I was given to understand the savings which Peoples Gas Light and Coke Company made during a certain period of their operation were sufficient to counter-balance any loss ultimately sustained. I have made no investigation of the subject. It is a matter of past history except in so far as Peoples Gas Light and Coke Company were called upon to pay off the guarantee. I was merely trying to give a general picture of what I knew about this proposition. I don't think there is any conclusion to be drawn from anything I have said. I do not know whether or not other large investments besides the pipeline investment were made in and around that Indiana field on the strength of the presence of that gas. I do not know that gas was being produced in large quantities. I don't know the length of time before the supply in that field was completely exhausted. I do know that it was far short of the contemplated life of the field as of the time the pipeline was built as indicated by the maturity of the bonds, but I have no knowledge as to whether the term of the bonds was a reasonable one or whether it was

simply a "by-guess and by-gosh" venture in which some people were able or were going to make money by selling the bonds and ultimately palming them off on Peoples Gas Light and Coke Company through a guarantee. You can't prove from me that a lot of developments were made down there and the field was promptly exhausted.

You ask if I know anything about the Tioga field in New York. I know gas wells were brought in a few years ago, 1935, I believe, and for a while there was some rather rampant speculation in the field. All of this died down to a considerable extent. I do not know of a pipeline that the Cabot interests built to their plant up at Rochester, New York to convey gas for industrial purposes. I do not know that right now the field has been exhausted to the point where the withdrawal of gas must be restricted in the immediate future. I do know that gas fields are inevitably exhausted sooner or later, and that anyone who deals with natural gas pipeline securities must know that ultimately the gas which is being transported over that line, the source of that gas,
1759 will be exhausted. I do not know that that is a circumstance that the Commissions and courts in general regard as constituting a special risk from the standpoint of those who invest in properties that are dependent upon natural gas supply. I think on the contrary that is to be given effect to in setting the depreciation and amortization charge.

You ask if I have read the cases dealing with that subject. I am no lawyer. To a certain extent I keep abreast of what the courts have said about this risk, a sufficient extent for an accountant. I probably have not read the case of *Wichita Gas Company* v. *Public Service Commission of Kansas*, 2 Fed. Supp. 792; confirmed in 298 U. S. 561. You have read to me from the opinion of Judges McDermott and Phillips in that case as follows:

"The pipeline company is subject to the hazards attendant upon the production of gas, and its transportation to distant markets. The amount of gas it may take from its own wells, and the price it may charge for its product, is subject to regulation by public authority. It must find a market in a highly competitive field. It competes with coal and fuel oil in household heating and for industrial purposes; the competition of fuel oil is particularly formidable for household heating; improved oil burners are

automatic, approved by the National Board of Fire Underwriters for safety, are as clean as gas, and dependable. Electricity has absorbed the household lighting and is making serious inroads on cooking. In short, it must search for and find its gas; transport it hundreds of miles without an hour's interruption; then find and satisfy its customers."

You ask if I agree that that is a correct appraisal of the risk involved in the natural gas pipeline business. I think it is a rather flowery description of the difficulties in natural gas pipeline business and I would certainly, giving it all the weight the court seems to have given it in there, still say that it is a very small risk compared to the risk in the ordinary competitive enterprise not subject to regulation, such as steel, automobiles, anything that you choose to take.

It is my opinion that a man who is confronted with the decision of whether he will buy his raw materials now or contract for them now at a fixed price and take his chance on the trend of the prices on the things which he makes out of the raw material, is confronted with greater risk than the man who puts his money into a pipeline extending 950 miles across the country, to engage in the production from a field in Texas of natural gas and transporting it through that pipeline to a market 950 miles away. If it turned out that the prices are lower than anticipated by the manufacturer he can give up a part of his return and protect himself against the risk. A great many manufacturers manufacture only on order and sell through jobbers who then take the risk and would have to get a part of the return. That is his option, to buy on a long-term contract basis or to buy on the market his raw materials; and he has the further option he can sell the basic raw material short on the market for repurchase as of the date of sale. You ask if that is the kind of option open to a pipeline company. The money in the pipeline is risked once and for all. These risks in the ordinary business keep on day after day. A man might be making a nice profit in January, February and March and then make a loss. It affects a larger portion of his capital. It works continually and rapidly. The risk of investing in the pipeline is substantially the same risk that a manufacturer undertakes in his investment in plant and machinery
1760 and his fixed assets. It is a different kind of risk.

You ask if I mean that the risk involved in the pipe-

line business is taken when the pipeline is built and that there isn't any risk after that. There is a risk for the capital over a long period of years with a part of the capital coming back each year. The fixed charges run right along through the years. You ask if there is anything he can do about it after he puts his money into the pipeline, such as the election of the manufacturer to buy his raw materials on the market from month to month or day to day, rather than take the chance of contracting for a long period of time. He can get certain underwriting agreements. I think he can relieve himself of part of the risk. No, he can't get out of the pipeline business after he gets into regulation. He can't shut his pipeline down like I have said these factories may be shut down at times, and for that particular reason he is entitled to a fair return on the fair value of his property. You ask if he is not entitled to make it if he can get it, under regulation. There are some possibilities of not being able to get a fair return on the fair value of the property, but I think for the present we ought to assume the indutsry that is being regulated can earn a fair rturn on the fair value of its property. You ask where defendants would be if their revenues be reduced by $3,000,000 and we have another year like 1938 coming up in 1940. My answer is I don't know. You ask if defendants revenues were not $1,000,000 less in 1938 than in 1937. They were less. I don't remember the exact figures. I could look it up if it is important. Yes, I said that the experience of the Natural Gas Pipeline Company has shown the pressure of this type of risk, that is the risk of varying demand, but it takes a microscopic examination to find its effect in the profit and loss account. I then went on to say "Its sales to industry during 1938 fell off substantially from the peak in 1937 but the effect on profits was hardly noticeable and could be determined only with a very detailed study." Yes, I was talking about the varying demand for natural gas in that statement. You ask what the figures were as between 1937 and 1938 according to those records. I don't think I want to answer that question because what I had in mind was the correct profit and loss.

I have had some men abstracting the records of Natural Gas Pipeline Company of America in order to obtain information. I find it—I made several attempts to segregate the profit and loss of this company, to segregate between

profit on the sale of Chicago District Pipeline Company for residential and commercial consumers and the profits from industrial sales—and I find it a very difficult undertaking, and I wasn't going to spend too much time because I didn't think there was much point in it, but in my opinion the margin of profit on these industrial sales is comparatively small, the effect is comparatively small. There are a great many adjustments that would be required in the earnings statements submitted both by members of my staff and by the company. My investigation leads me to make that statement. I still feel if we segregate the effect of the sales to industrial consumers and the profit on those sales and then compare them we still find the net return is changed very slightly.

I don't know whether you are selling gas for all the purposes you can get anybody to buy it for or not. I presume you are selling gas in order to realize the maximum amount of profit that you can realize. It is true you are not confining it to industrial purposes. It is true that there was a considerable variance between the demand for gas from your customers in 1937 and 1938 for all purposes.
1761 The greatest part of that difference was the falling off in the taking of industrial gas as between those years. Your exhibit shows that the net earnings from operations in 1937 were $10,763,000 as against $9,884,000 in 1938, but when you are talking about actual earnings you have to make a much more detailed examination than this one. There has been no attempt made by you people or by my people to actually segregate these profits and losses, as to how they arose. You haven't made any attempt to set forth those expenses which relate to the year's business and those expenses like drilling wells, the purchase of oil, for example, for lubricating purposes, which comes sporadically. You have nothing but one year's income account in this one year. I know that these figures have been reconciled with the figures of our Mr. Woodford, who himself introduced figures pertaining to those earnings in a broad general figure presenting the general picture. You cannot use these figures to draw any conclusion as to what the exact effect was of change in demand. No, the Illinois Commerce Commission is not going to put in evidence of the character I am now referring to. If you go down below net earnings how are you going to allocate depreciation, depletion, and retirement, one of the largest

expenses you have? Certainly one of the logical bases is to allocate those expenses on the basis of cubic feet of gas being taken out of the ground and make that adjustment and see what the profit and loss account is going to look like.

In my direct testimony I said the gross shows a very substantial change, but I think the net takes a microscopic examination to find. If you want me to, I will make just that one simple computation of depreciation and depletion and put that on a cubic foot basis. You ask if they didn't have the depreciation and depletion set up on the same basis in 1937 as in 1938. Is that the basis you are going to use when we discuss profits from industrial sales and changes in demands? Certainly a much more logical basis for the determination of the effect of change in demand is to set up your depreciation and depletion on the basis of cubic feet withdrawals and not on the basis of time. That is true even though you are competing for production from your different properties with 100 or 1,000 other producers. You are going to take out so many cubic feet of gas to recoup such and such an investment. It is a perfectly logical basis. It is my view, with respect to the revenues, that it would be microscopic and would take a close analysis to determine whether any loss occurred as between the years 1938 and 1937. On page 1 of Exhibit 136, the way that page of the exhibit is developed, the net earnings before other charges are set out in line 5. The indicated difference between the years 1937 and 1938 is approximately $900,000. That difference is not attributable to varying demands as between those two years. It is attributable to quite a number of varying factors. Let us take a simple thing like purchase gas expense. Now, purchase gas expense did not vary in accordance with the sales of cubic feet of gas. Neither did your production expense. Neither did anything else. You have certain expenses in here that are regular and normal expenses, which I presume in any proceeding, in any managerial judgment, will be chargeable against your basic load customer; in this case, the residential and commercial customer. Now, then, the mere fact that you make such a large differential in the price between the sales of gas for industrial purposes and the sales of gas for residential and commercial purposes, show that you are not charging a full pro rata share of your expense against that industrial customer.

Defendants do not have any residential and commercial customers, but they sell gas for those purposes at certain rates, at wholesale. The first line shows that there is
1762 a difference of $1,100,000 in the gross income, and when the operating, maintenance, and general expenses are all paid, the difference is reduced to about $900,000. You ask to what I could attribute that falling off in net earnings from operations, except the fall in gross as a result of variance in demand. Turn to page 2, and look at your gasoline sales, that have dropped off by $225,000, as part of your gross. You ask if the quantity of gas that you had a demand for had something to do with that. Your sales of gasoline in gallons in 1938 was $27,474,000 gallons, in 1937, 24,864,000, so that you actually sold more gallons of gasoline. You ask if that ought not to have reduced the difference between the revenues for the two years on that basis. You are taking much too simple a view of cost accounting analysis. We can't say that this ought to be this and this ought to be that. It requires considerable analysis to find out. You ask if I have studied the volume of gas that we sold in 1937 as compared with what we sold in 1938, I have the statistics and have made certain studies. In 1937, as shown on page 6, it is 74,476,000 M.C.F. In 1938 it is 68,759,000; a difference of nearly six billion cubic feet, or about 8 per cent. You ask if that drop isn't attributable to this element which I have said is a risk in some businesses but not in defendants', namely, the variance in demand. I did not say that variance in demand was not a risk in defendants' business. You ask if the falling off of the gas sold of almost six billion cubic feet is not an important matter from my standpoint. It is an important matter, but the six billion cubic feet gives you no indication as to the change in profit. It would depend on how much of that six billion was your lowest priced gas and how much was your highest priced gas. I can conceive that if your highest priced gas increased and the lowest priced gas decreased, you might have a reduction in M.C.F. sales and an increase in dollars. You had a reduction in all but two types of sales; line 11, Standard Oil contract, was greater for 1938 than for 1937; and line 13, all other gas sales, was also greater for 1938 than for 1937, as shown on page 6 of Exhibit 136.

You ask me to read from line 1, page 1 of Exhibit 136, where the difference is turned to dollars. I will read it.

but I am not going to draw any conclusions on those figures. My statement was, based on an examination of this situation--and I say that you cannot merely take a few figures and reach a conclusion from them; that it would take a long, detailed examination. As far as my examination shows, that variation and change in demand is not one which produces a very large change in the profit and loss account, in comparison to what the change in demand produces in an industry. I would not say that this difference of $1,100,000 in gross revenues and $900,000 in net revenues from operations was of importance until I analyzed the operating cost. I would also want the depletion, depreciation and retirements. You ask whether investors would look at the gross revenues and the gross volume as between the two years. Do you realize that you are talking about a change of nine or ten per cent at the most in variation of demand, where industries are faced with changes of forty to fifty per cent; that actually change from a nice fat profit in one year back to a fat loss in the next. The next year they may go to a fat profit again.

The ordinary industry sometimes takes advantage of a rise in the market. Sometimes it does not. If it had the opportunity to do so it would do so, but they don't always do it. I don't think that in the ordinary situation they are in position to do it. A great many merchants do not take advantage of the change in the market. There are many extensive advertising statements to that effect. A great many merchants have a base price which they point to with pride; and advertise extensively that though the price of leather has increased so and so much, we haven't raised the price of our shoes; although the price of cotton has gone up so much, we are still selling our shirts at one dollar, and so forth. They take advantage of the increase in price when they feel it to their best advantage to do it. I cannot say that ordinarily they feel it is to their best interest to do so. Most merchants are trying to sell at a fixed price, a base price, and adhere to that price. Your shoe industry, your hat industry, and to a great extent your shirts, like Arrow shirts and Manhattan shirts, make a price. That is the price of their merchandise. They want a man to know when he comes in and asks for an Arrow shirt or a Manhattan shirt that he will pay $2 or $3. The same way with Regal shoes, Thom McAn shoes, Walkover shoes; they all want one price. Florsheim, they have a fixed price. You ask if Thom

1763

McAn didn't raise their price the other day. I am not saying that they always adhere to that price, but they don't take advantage of these minor fluctuations. I will admit, for the sake of going on with this proceeding, that in general business does look to take advantage if they can of price changes. You ask if there is always a chance that by reason of an increase in price or the value of the thing which they are selling that they will make profits just as much out of proportion as the losses which I referred to just a moment ago. That is at least their expectancy. They hope over a period of years to make money. That is the reason they are in business. The hope of making large profits is the reason they are in business.

You ask if defendants, so far as the top price is concerned, have been limited to the prices that were fixed by their contracts. They have a contract price on what they have to sell. I don't know that it is just the fixing of a top price. The top limit of their revenues is determined in part by the prices fixed by their contracts. The quantity is another term. When there is a varying in the demand, as took place between 1937 and 1938, that cannot be made up and offset except to the extent that the restoration of the volume at the same price would tend to offset. You ask if it isn't true that if 1937 represented a maximum of their capacity, approximately, and it fell off in 1938, with the result that they lost $1,100,000 in gross revenues, they cannot hope in 1939 or some other year to get $1,100,000 over and above the revenues of 1937, because they are held down by their prices. On the assumptions you have made your conclusion is correct. You ask if they have the hazard of varying demand without the opportunity of offset by increased market price for the thing they sell. If you want to call that a hazard, yes. You ask if I think it is a hazard. I think that it should receive consideration in determining what the reasonable expected earnings of this company is going to be. Yes, I said in my direct testimony that it is a terrific hazard from the standpoint of unregulated business. Ordinary business finds a loss at the end of fluctuations and demand, not just a reduced profit. They find a change of not one million dollars or one million one; but I am quite sure I can find some large corporations where the change was 100 million dollars. You cannot make it in dollars, because it is the per cent in the change in demand, and 10 per cent is a com-

paratively small change in demand as compared to what is faced by ordinary industry.

You state the question is, what will the reduction 1764 be next year if the varying demand reduces it by $1,100,000 and the Federal Power Commission reduces it by $3,000,000, making a total of $4,100,000 next year. You ask when defendants can recoup that $1,100,000. In subsequent years, I assume. I did not say that defendants did not have the hazard of varying demand. I said it is small compared with the hazard of ordinary business.

Now, I would really need some more information as to what caused the reduction of $1,100,000; what the cubic feet of gas were; whether you are going to have that tacked on, at least to some extent, in the year 1954. But I presume and assume that when the Commission determines what the reasonable expected earnings are they will have before them all the information that is necessary to reach such a determination, and that if there is any great hazard of the sales falling off, they will determine that in connection with the indicated earnings. I think you are trying to confuse the weight that should be given to the dollars sales which may drop off or increase and the weight which should be given to the hazard in rate of return. Now, I am assuming that the reduction when made will be on the basis of reasonably expected earnings for the future, not any peak year the following year is going to show a much lower figure which then can never be exceeded. I have stated that industry has a severe hazard as a result of varying demand. I have conceded on cross-examination that any falling off may be more than made up by an increase in the demand and an increase in the market at a later time, and that business is looking forward to those recoupments, which may or may not come. You ask me to assume, for the purposes of this question, an industry that is regulated and whose rate of return is fixed at the rate I have fixed here of six per cent, and then next year we have another 1938 and its revenues fall off by $1,100,000, as a result of varying demand, and ask if it will make six percent under those conditions. You asked me to assume that the Commission is going to take as the earnings some figure that is not indicative of the reasonably expected earnings to accrue next year and the year after that and the year after that.

I have said myself that varying demand is one of the things that confronts industry. When there is a varying demand upon the industries that you serve with fuel there is going to be a varying demand upon you.

You ask how defendants are going to recoup the losses or have the losses offset which they will sustain as a result of these variances, should they occur. I am assuming that the Commission in finding the income available for return for the future will give full consideration to all of the factors which affect the sales up and down and strike a balance of those factors at some reasonable figure; that when they reduce the income through a rate reduction that it will not be reduced to that point where any drop in demand will cause the company a loss which can never be recouped. They will fix a figure that if the demand goes up they will make a little more than six per cent; if the demand goes down, they will make a little less than six per cent. I am quite sure that if they use the figures presented in Exhibit No. 141, the company will make more than six per cent if they are allowed a six per cent return on the basis of Exhibit No. 141. Yes, if defendants fail to make six per cent during any one year they will get less than six per cent. You ask if there is not a constant possibility from year to year that they will have a repetition of conditions that will operate to reduce their revenues. Yes, there is always a possibility of all possible things. Of course if the revenue is reduced by a million dollars next year, as an illustration, as a result in the falling off of demand, there is a way to recoup that and make the
1765 average six per cent. The fact that your rates are reduced is certainly not going to hinder your chances of selling the gas. It is going to limit your top price. Your earnings will be the result of a great many factors. One important factor will be, having nothing to do with absolute demand, whether you can sell all of your gas at the top rate block instead of at one of the cheaper rates, that you will have to abandon selling some of the interruptible supply gas, because you can dispose of that gas somewhere else without any increase in cubic feet sales. You can have a very substantial increase in dollars of sales and dollars of profits. You have been talking about things that have very faint chances of happening. I am talking about things that in my mind are a strong probability.

You ask if I do not know as a matter of fact and as a matter of law that if it turns out as a result of varying demand upon defendants for natural gas by their customers that you lose a million dollars some year, and there is thereafter a new rate case, that loss cannot be taken into account and restored to defendants at another rate proceeding. I certainly made no such assumption. I am acquainted with the fact that the Illinois Commerce Commission, for example, has been treading on the toes of the utilities of this state right up to the summer of 1937 in an aggressive program of rate reduction, right when the recession started. Now, the minute the recession stopped we are not going to jump back on those companies and say, "We think you are going to make six per cent and it is an allowable rate of return." That is not the way rate regulation runs. You are not going to be deprived of every nickel above six per cent. We are going to fix reasonable rates of return, and on the basis of expected earnings give full consideration to the testimony adduced by the company and full consideration of all of the testimony this Commission will set down, and decide whether this company is making too much money, and if so, how much too much. That will be taken, under normal circumstances, into consideration. It has been my experience under regulation that the utilities by and large will make more money than is expected of them, because our experience has always been that after a rate reduction, back comes the gross and back comes the net, and in about another year, a year and a half or two years, you have got another rate reduction coming. That has been the history of rate reduction. You do make more than six per cent sometimes. Fixing a rate of return at six per cent does not freeze you down that what is lost is lost forever and there is no possibility of ever making any more than six per cent. I am quite sure you will make more than six per cent in quite a number of years, even if this Commission fixes rates at six per cent.

You ask if the difference between defendants and a utility isn't that defendants have a pipeline through which they can transport 210 million cubic feet of gas daily whereas the utility has the facilities with which to supply the demand of their customers and there is not any top limit on the amount that such customers may take if the conditions are favorable. All utilities are restricted by

their capacity; generating capacity of electric utilities is an example. You ask if that is the same restriction that there is upon a pipeline 950 miles long. I do not know what leeway you have in pressures. I am perfectly willing to state that it may be that your pipeline acts somewhat more restrictively than let us say the electric industry. I do not know that it acts any more restrictively than the loop does to the transportation industry. I mean the loop in Chicago. Bottlenecks always work for restrictions. The Chicago loop is the downtown business district in the city of Chicago.

1766 If the prices at which defendants sell gas are fixed so that they will be allowed a return of six per cent based on the normal quantity of gas they handled through their pipeline, and there comes a situation such as they had in 1938 where as a result of a business recession the volume demand was so reduced that their revenues were reduced a million dollars, defendants will have a reduction in net of an undetermined amount. Under the law it cannot formally be restored; but I have not any worry that utilities will find themselves earning an absolute level return which they cannot exceed. My experience has been that utilities uniformly are making more than a fair rate of return. That is the reason we have rate cases. You ask if I have not a perfect conviction that my last statement was true and that the rates of all utilities ought to be reduced. No, but it has been my experience that utilities do make more than a fair rate of return, and therefore we have formal rate cases that drag on a year or a year and a half before we get a reduction, during which time the utilities, as has been decided by the Commission and by the courts, have been making an excessive rate of return. I am quite sure that investors generally regard the regulated industries as those from which they ask the lowest return. You ask if I don't think that any investor contemplating putting his money into the securities of these companies under the circumstance of having the price so fixed as to limit the return to a definite amount, would take into account the possibility of a recurrence of another recession such as occurred in 1938, which would reduce the earnings to a level below the rate of return fixed by the regulatory body. I can't give a categorical "No" to a question like that, that no investor would give any thought to that. Whatever fear they may have, and I doubt

whether many investors would have such fears, are more than counterbalanced by the regularity of the business in the field of utilities generally and in the natural gas field as shown by your specific company. Certainly investors are not going to give very much weight to a factor like that. They are not afraid of regulated industries, that because the Commission fixes a rate of return that they will never exceed that rate of return; that a loss once made is gone forever and cannot be recouped, because that is not the way the investor generally weighs the factors and decides. Generally the investors regard the regulated industries as the best. You ask how I found that out. The yields necessary to keep stocks and bonds of utilities at par are lower than that required to keep an industrial at par or any other type. As a basis for that statement, I have in mind the stocks of electric companies, gas companies, water companies. I didn't have any one particular company in mind whose stocks are dealt with on the basis that I have just described. If your question goes to the accuracy of my statement as to whether utilities can finance at lower rates of return than other companies, I will prepare a study for that. I thought that was almost prima facie. Look at the rates utility bonds are being sold at. I didn't say that investors are demanding small yields. I said smaller than he does generally demand. That is a fact.

You ask for some illustrations where that is true of equity securities. I will prepare a statement. I do not have that kind of a statement with me. I base my statement merely on general knowledge. You ask if I can name any other than the Commonwealth Edison common stock issue that has been offered to the public in substantial quantities in the last four years. Stocks selling on stock exchanges gives a fairly good indication as to how the public generally regards utility issues. There is a comparatively small volume of sales and purchases of common stocks at this time and in the past several years.

1767 The financing through the issuance of common stock has been smaller than usual; but I think that it can be done if, as and when there is need for equity capital by a soundly financed corporation. Based upon that statement, my general knowledge, and quite a number of other things, I think that an investor would take a smaller yield on securities of a regulated company, and that he would give no particular weight to any possibility of reduced

earnings through varying demand in the case of a natural gas company. I have given the element of risk in varying demand as applied to defendants the weight which I thought it deserved. I have given these companies substantial weight for risk. The riskless securities that I heard you talk about were 1.35 per cent. Now, I said six per cent. That is an awful leeway for some risk, isn't it? You ask if I have given substantial weight to the risk of varying demand. I have given it the weight I thought it deserved. Substantial is a very vague word. Would you call 1/16 of one per cent substantial? I am talking about 1/16 of one per cent of return on a rate basis of $60,000,000. I never said a while ago that I didn't think that was a risk of any substantial importance. I said it is not a risk of substantial importance when compared to that kind of a risk in unregulated business. I started out in my direct testimony to lay a background of the risks that are facing unregulated business in order to arrive at the reasons that a utility under regulation should not be allowed the type of returns that are made by unregulated industries, when they happen to be profitable. I never ignored the risks that are facing defendants or gave them insubstantial weight, otherwise how could I get six per cent. I would have wound up with two per cent if I thought they were insubstantial risks.

You ask if as to this one particular risk I have said that as applied to these companies which are now under regulation, it is not a substantial risk. Compared to unregulated industries that is my statement, and in my judgment as to a proper rate of return I have so rated it.

In my direct testimony shown on page 8041 I stated that the next element of risk which defendants had in a negligible degree by comparison, is that of the labor situation. You ask what I refer to by the expression the risk arising out of the labor situation. Well, the type of risk in the labor situation is demonstrated by the quite general situation that a manufacturer undertakes his contracts in advance of production, and then is called upon to fulfill those contracts, generally at a stipulated price. During the course of that fulfillment he is dependent upon labor to produce the required goods. If there is any dissatisfaction in labor the manufacturer either fails in fulfilling his contract or he finds his estimated profits substantially reduced. Investors regularly and generally take notice of

that risk or hazard. It is naturally reflected in the yield which the investor would demand on the investment. Yes, I say that whenever a manufacturer contracts to deliver his products at some future day at today's prices he must face that risk.

You ask if I do not agree that defendants are in that situation so far as the fact that they are under contract to deliver at fixed prices on into the future is concerned. You have to the extent that labor is a factor, a variable factor, of course, in your instance. In so far as you are selling your commodity under a fixed contract you have some labor risks. In so far as you sell it under rates promulgated by the Federal Power Commission, you will have no labor risks, because that will be an operating expense; and if you have increase in operating expense which justifies an increase in rates, you will get an increase in rates. I have no opposition to the company making money. I am an accountant. I am not charged with the duty of seeing that the company's rates are reduced. I am to investigate and report on the facts as I see them. When a company gets under regulation
1768 its labor hazard is over to a very, very great extent.

I know of no case where wages paid to employees who are working in the business can be excluded as an operating expense. I make no criticism of that, even though I have reason to believe that they may be excessive because of certain circumstances. As an example of that, during the depression a great many of utilities found it desirable to discharge younger men in their employ, and keep the older men on the payroll. The older men, by reason of seniority, were quite generally getting a higher wage. In rate cases where I made investigations in 1935 and 1936, when that condition was prevalent, I pointed it out to the Commission, but there is no indication, either in my statement or the Commission's attitude, that wages honestly paid for men working in the business can be disallowed. I can't conceive of any Commission disallowing any such expense.

The demand of labor for higher wages is not the only labor trouble that industry may get into. It is slowing down of production. I don't want to get into all of the types. I have heard recently that in the building industry the A. F. of L. labor had refused to install materials produced in CIO factories. I don't think I want to pose as an expert on the labor situation. As an accountant I do know, how-

ever, that that is a prevalent risk; and certainly at the present time with the Chrysler strike we have a glaring example of the effect of that risk on industry, and its effects on a year's profits or a year's losses. Yes, there is the risk of strikes and other labor disturbances. I don't think that risk confronts these companies to any appreciable extent because their employees are scattered over a distance of some one thousand miles. In other words, I think that where you have one factory that employs, let us say, 3,000 men, you have a much larger labor risk than if you have those 3,000 men scattered in groups of ten over an area of 900 miles, or even over an area of 200 square miles. No, I do not think that the labor of these two companies is scattered in groups of ten, but it is more scattered than you usually find in an industry. You will find groups of men at each of the compressor stations. The risk arises out of the congregation of these men under certain circumstances. Now, if you have your men broken up into ten groups, you have probably one-third of the risk that you would have if you had them all in one group. You ask if the fact that some of them are rather remotely situated with reference to management adds to or detracts from this element of risk. I imagine that a man who has duties removed from management, and to some extent beyond the control of the management, would require a higher rate of pay, but I would not consider that that was a risk. I think there would be less likelihood of getting into labor disturbances under those conditions than if you had them all in closer contact with the management. One man alone is not liable to cause a labor disturbance, but a group of men working together may.

If you had 600 men all working in one plant you would not have to get all or a majority of them agitated to start a strike. I think we have all been informed on at least reported facts that a few men can tie up the whole plant; not only that plant but all of the suppliers' plants that are around it. As a matter of fact, take the Chrysler suppliers, it was not their people that caused that labor disturbance, it was the Chrysler people. In the same way Chrysler might be confronted with that risk by one of its suppliers having a labor disturbance, by reason of the fact that he can't get steel or glass.

I made a distinction a moment ago between having 600 men together, or 3,000 men, and in having them scattered out in smaller groups over a thousand miles. That is

one of the distinctions. You ask what would happen
1769 if the group of men who operate the Joliet station down here would take possession of the premises and sit down. You would have a very serious labor disturbance. You probably could not operate your pipeline until you had them under control. That is perfectly true of any station down the line. If the production crew scattered over the gas fields in the Panhandle of Texas were to go out on strike that might stop the operations of the pipeline. So you can have a strike in one of a number of groups in the case of defendants and put the pipelines entirely out of commission. I don't know how many strikes they have had in that field down in Texas. I haven't investigated that. Defendants have never been put out of commission by a strike. There is some risk there. If you had only one employee you have risk of labor trouble. We are talking here comparatively. After all, I am not trying to testify as to whether this risk exists or does not exist; but all of these risks must be taken together in order to arrive at a rate of return.

I say that this risk in the case of defendants is small as compared with industry generally; notwithstanding that at a dozen places, namely the ten compressor stations, the Joliet delivery station and the field, strikes would absolutely tie up the operation of the whole pipeline. You ask if that risk is confronting these pipelines just the same as the risk of a labor strike is confronting an industry which has its men all together in one place. If you mean by just the same, the factual risk, yes. If you mean by the "same" the same risk to profit and loss or damage to its property, no; because it is the total difference in the thing that I am interested in. I am not interested in whether they could tie it up for a few days or whether they could not tie it up for a few days; but what is going on in the mind of investors is what we have to evaluate; how prevalent that is in your industry; and how likely it is that the public authorities would step in here with this public utility and stop it. You ask what public authorities would step in in this instance. If it was Joliet the State of Illinois authorities would step in, I think, rather rapidly.

Yes, I have heard of labor strikes leading to the use of dynamite. You ask if I have heard of it in the newspapers. We had it more closely than that in the State of Illinois. I did not know that down in the State of Oklahoma, through which this pipeline runs, there have been repeated dyna-

miting of pipelines as a result of labor disturbances in the last three or four months. That is a possibility. That kind of an explosion separating this pipeline could amount to several hundred thousands of dollars to defendants. Yes, if it happened at a compressor station it might probably run larger than that. There would be some interruption in service and there might be some loss of profits. You ask how long it would take to rebuild a compressor station. I haven't made any investigation of that, of your setup for emergencies of that kind. I presume that the company has taken normal precautions against such catastrophies. Yes, it is quite a job to patrol a thousand miles of pipeline and it is also quite a job to patrol a thousand miles of electric transmission line or a thousand miles of railroad.

I think that there is an element of risk as to the possibility of labor disturbances confronting these pipelines to a degree sufficiently substantial to get some weight; but compared to ordinary industry any investor I am quite sure would agree with my statement that these companies have a much smaller risk arising out of the labor situation than ordinary industry. That is my judgment, on the basis of which I have given my testimony.

1770 You refer to my testimony of another type of risk shown at page 8042 of the record in which I use the language, "arises out of the overhead expense connected with the business, that is, the expense of operations other than productive wages and consumed materials. To a certain extent these expenses go on even if a factory is shut down completely; to a greater extent these expenses accumulate if the business is operating but at an unprofitable capacity. In the first place, the cubic foot sales of the pipeline company do not measure its revenue." I was talking there about the capacity charge in the contracts of defendants. I think your hazard in overhead expense is substantially taken care of with the capacity charge, due to the fact that seven and one-half million dollars collected for capacity charges would enable you to run along indefinitely and pay your expenses that required cash payment. I don't know exactly what you mean by the observation you have just made that that would be true if you are permitted to run along indefinitely under that contract. You ask if I am not here today as a party attacking the very contract that I say is defendants' security against overhead risk. I am not attacking anyone. I am testifying at the present time with relation to the rate of return which this com-

pany should be allowed to earn, and which in my opinion will be a fair rate of return. The Commission, of which I am the chief finance and auditing officer, is here attacking the price at which you are selling gas in the State of Illinois, and that price is made up in part of a capacity charge and in part of a commodity charge. You ask, if a reduction is made in your revenues the security which you have in your capacity charge against overhead risk may be reduced. If the price which you receive under that contract, which calls for payment partly on a capacity and partly on a commodity basis, is reduced it will not necessarily have been demonstrated that defendants have been confronted with a risk on the question of overhead expense. I don't see where any legitimate reduction in rates gives you a greater risk in earning that return. It gives you a risk that you are not going to any higher return, possibly, but not on that return.

I said a moment ago that defendants had an assured $7,500,000 a year under their capacity charge and for that reason they did not have this overhead risk. Now, if the three millions is taken out of the seven and a half million, then you will only have a four and a half million dollar guarantee, but if it is taken half out of commodity charge and half out of the capacity charge, you will have a six million dollar guarantee. If it is all taken out of the commodity charge you will still have a seven and a half million dollar guarantee. You ask what the commodity charge amounts to per M.C.F. In large parts, I think six and a half cents. Six. I haven't tried to remember those figures. I have them in my working papers. You ask if as long as I have been dealing with this subject I can't tell you what the commodity price under the contract here under attack is. First of all, I am not attacking it. Secondly, I am not interested in your present rate structure or your past rate structure or your future rate structure. My investigation was entirely to the line of what we are talking about now—the rate of return. The other investigations I made were relative to the company's incoming expenses for past periods, the cost of building its property, and the meaning of some company evidence.

It is true that the thing that has been the object of my attention has been the number of dollars that defendants have made and not the price of gas to the people of Chicago who are purchasing it here. I wouldn't say that I

haven't taken the trouble to see even what defendants are
charging for it. I looked at the rate schedule and I
1771 did compare the prices under the various contracts,
but that was a long time ago. I saw no point to it at that time, and I have not bothered to remember. Besides which, I work on several cases at one time, and if I tried to remember things like that I would be overburdening myself. I simply can't. I believe in reporting things. If I want to find out what the price was, I would look it up for that particular purpose and not rely on memory.

You ask what is the capacity charge that is the subject of complaint in this proceeding. It amounts, as far as the Chicago District Pipeline Company is concerned, to substantially seven and a half million dollars. You ask what it is per thousand cubic feet. Five dollars and a quarter per thousand cubic feet of gas on the maximum demand registered by using the so-called firm sales. I mean five dollars and a quarter per month per thousand cubic feet. That is not based on the whole 210 million capacity of the pipeline. It is the maximum demand that was registered under certain conditions. There are several complicated clauses governing that, but to my recollection it substantially means the largest take, for what is usually shown as firm sales up to date. The figure happens to be 120 or 122 million cubic feet. I don't remember whether it is 120 million or 122 million per day. The reason for that capacity charge is that under their commitment to their purchasers defendants are required to hold 120 million cubic feet of capacity at the command of the purchaser. No, that is not the volume and the capacity price that was set forth in the contract as it was originally made. There have been some adjustments in favor of the customer. I don't remember the figures. It runs in my mind from five fifty to five and a quarter, and I don't remember what the other amounts to. The revision took place in 1935, I think. That was before the line was fully loaded, on what you have called fully loaded. I think we are in the same problem that we are into as to capacity. Is a capacity all that you can possibly produce or is it the reasonable maximum normal production, or is it a possible peak which you know can be produced and which is your objective to keep on producing? Now we often hear that capacity for steel is 85 per cent of normal production. They can go up to 105 or 108 per cent of the rated productive capacity. In 1935, at the time the

investigation of the capacity charge was made, the pipeline was not transporting and selling as much gas as it has produced during the three or four years since that time; yet it was revised, I think to some extent it was the result of the case before the Illinois Commerce Commission, and to some extent it was possibly the initiative of the Chicago District Pipeline Company, and behind it the Chicago area utilities. Yes, the capacity charge as it was originally written as to both the price and the volume was revised, whether it was to meet the necessities of the Chicago District Pipeline Company or whether it was under pressure brought by the Illinois Commerce Commission. I think there is a possibility that that might happen again either on one of those considerations, or maybe some other considerations might enter into it.

(The witness continued his testimony as follows: "the company might become ashamed of its profits and decide of its own accord not to make so much." Upon being accused of joking by Company Counsel the Trial Examiner ordered the answer stricken whereupon the witness continued: "I am not joking. Why do you think utilities make rate reductions of their own accord? Because they know they are getting too vulnerable and they are ashamed of their profits, and when I made investigations of those systems I found statements of that system that 'beyond this point, we do not dare to go.'" Upon motion by Company Counsel the Examiner ordered stricken the statement of the witness over objections of counsel for the two commissions.)

You ask if, in the light of the history of this capacity charge and of the circumstance that that capacity charge is right now the subject of this inquiry, I don't think that I have rather lightly dismissed it in my direct testimony when I say that this one factor removes the pipeline from the plane of ordinary industry into that of a guaranteed industry. No, I still expect the Federal Power Commission will allow you a capacity charge which will be what capacity charges usually are; the reimbursement for those necessary expenses which are so basic to your operations that they cannot be properly loaded on the quantity of your commodity which you are selling. Now, that is the purpose of the capacity charge. I think if the Federal Power Commission were to find that the capacity charge was an adjusted charge for that purpose, that you

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would then be allowed the capacity charge, and any change in rate must come from the commodity charge. You ask if I didn't treat it in my testimony as a fixed sum of money, and if on cross-examination I did not state it in terms of seven and one half million dollars and said that these companies having that much money did not have any risk as to overhead expense. Certainly; that statement is true of the seven and a half million dollars, but I also felt I had a right to assume that there is going to be a demand charge or a capacity charge in any rate that the Federal Power Commission promulgates, and that that demand or capacity charge will be a proper one, one which will reimburse the company for just those expenses, which are the subject of the type of risk I am discussing. That is the idea of the capacity and demand charge. No, I have not in my direct testimony treated this particular risk which I say is applicable to other businesses as if you had a capacity charge fixed permanently which would take care of all of your overhead expense. I have said that you did not have that risk because I contemplated that you would always have a capacity charge and that that capacity charge would be the proper charge, not necessarily seven and a half million dollars. Offhand I do not know whether that is too high or not high enough. But whatever the Federal Power Commission through their rate department finally determine is the proper capacity charge is going to remove this type of risk to a very substantial extent from your business. That is certainly what I had in mind. I think that is what I said. Let's read it and find out.

On page 8043 my words are, "Even if the pipeline company sold not one cubic foot of gas, it would collect a demand charge from its principal customer, the Chicago District Pipeline Company, sufficient to pay all of its expenses including its present interest. Any business that has its complete overhead paid for regardless of business conditions need not worry about risk." Yes, I did assume a capacity charge that would take care of overhead expenses, including interest. I made that assumption in appraising that risk when I was considering the facts which led to my judgment expressed by me as to appropriate rate of return.

I remember making the statement "Another risk from which the Natural Gas Pipeline Company escapes is the credit risk." I can't recall the exact words, but I feel that utilities in general have a very small amount of credit risk, and that this company in particular has a still smaller

amount of credit risk than utilities in general have. In that sense I am talking about bad accounts, yes. In the sense that a merchant charging goods to Tom, Dick and Harry may have trouble collecting some of his bills. Any industry must collect its bills, and in the process of billing has a credit risk. I make the point that "Natural Gas Pipeline Company has very few customers and its one large customer that takes 90 per cent of its sales has not only its own credit standing to rely on, but its payments are guaranteed by three Chicago area utilities, which guaranty would satisfy any credit man." The ultimate purchasers of this gas are the Peoples Gas Light and Coke Company, Public Service Company of Northern Illinois, and Western United Gas and Electricity Company. Because these utilities have respectively guaranteed the price charged to the Chicago District Pipeline Company for that part of the gas that they respectively use, I think that guaranty would satisfy any credit man. I do not think that there is any present prospect of either of those three companies
1773 getting into financial difficulty. There may be a lawsuit pending now in which the issue is whether or not they are making an adequate return on their investment, but there is a lot of difference between making an adequate return on investment and being able to pay their bills. It has not always been their situation that they contended they were not making an adequate return on their investment. You ask if there have been changes in their situation. There was a change, according to their contention, from the boom days of 1929. Peoples Gas Light and Coke Company had a pretty tough time of it in 1920, 1921 and 1922.

You ask if I know the comparative figures of the net earnings of Peoples Gas Light & Coke Company for the last seven or eight years. There is a substantial discrepancy between the reported earnings and my opinion of what they have really earned. You state that you want the figures which they have reported to me officially. I don't carry them in my head. I have them. I think there are annual reports showing their net earnings from year to year for the past five years available in my Chicago office, which is all I can reach by tomorrow morning, the years 1934, 1935, 1936. Older periods I think are back in the Springfield office only.

You ask if there is more security in just having a few customers than there is in having a great many. Not al-

ways. It depends on who the customers are, how many the great many are. If you have a million customers, each one of whom is going to owe you $2 a month, you have certain factors which cause bad debt losses, general economic depressions, or particular specified economic depressions in a particular time, but over a period of years you will probably lose less than if you are selling the same total dollars to one thousand customers. But looking at this particular company with this particular situation, I think that there is an advantage to having a few large companies here as against having the same sales from, let us say, ten times that many customers more widely scattered and each one of them smaller. I think all of your customers are large enough so that if it impairs their ability to enter into a contract, there will be a receivership, and about all you will lose is what you have allowed them to run up as unpaid bills, which will probably be the current month's bills, and no more.

You ask if that was the case with reference to this electric line running up the north shore in its dealings with the Commonwealth Edison Company. I know something about that credit loss. I think you are getting on very touchy ground. I think at the time that credit loss was allowed to pile up, Commonwealth had one look at what their investment was in that proposition. They lost a very large sum of money in that one account. I don't remember that it ran into millions of dollars. There was a substantial sum of money, there is no doubt about that, but that was not due only to the inability of one customer to meet its obligations. That was due to the fact that the management of the Edison Company permitted that customer to fall behind in their bills over a long period of time, and the only reason that I can see that they did it was because of a community of interests as an investor with that company. I would think that was more in the line of an investment loss than a credit loss.

If one of these customers taking a very large per cent of defendants' total pipeline capacity were to get in a position where it could not carry out its contract to purchase, you would have a credit risk. You ask if
1774 you would not have that credit risk until it occurs.

I say my present appraisal of that risk is that it is very, very small; that over the life of your particular contract here to 1954 I think those three Chicago area utilities will be solvent enough to pay their bill for wholesale price

of natural gas, even if they do not pay their bond interest. A great many business men sell goods on credit knowing that the customer is very, very shaky. In those circumstances they try to get special compensation for the extra risk. In the case of defendants, if they exercised their judgment and stopped the delivery of gas before the amount accumulated, as I have said was done in the instance of the Commonwealth Edison Company, defendants would still have a tremendous difficulty facing them in that they would lose that volume of business. If the Peoples Gas Light & Coke Company goes broke you will have a much worse business than you have today. But they will have to go broke before 1954. I say that defendants have added security in that they have only a small number of customers of the type I have previously described.

If you had a hundred customers that were of the same quality in proportion to the quantity of gas they were buying from you as these dozen or fifteen that you have, you would have a better position from the standpoint of risk. I most emphatically do not think that a pipeline which serves three hundred cities or one hundred cities is in a more secure financial position than defendants who serve the City of Chicago and only a few towns down the line in Iowa, Nebraska and Kansas. I don't think there is a better market in the United States or even in the world than the Chicago market, for growth, prosperity, or any way you look at a market. I do not think that selling the same quantity of gas to three hundred towns would make your company any better or any stronger than selling it to the area to which you do sell it to.

Yes, I saw your gross income fall $1,100,000 in one year. I may be a little prejudiced in favor of Chicago, but I think that if Chicago and this Chicago area slumps down substantially, that slump will hit the whole nation at least as much. My discounting of the risk that defendants are serving only a few customers is based in part on the fact that I don't think the city of Chicago and the utilities serving that area are going to go broke, and that the balance of your customers also seem to be people who are a respectable credit; it is different than trying to serve people in sparsely settled areas. I gave no weight at all to the fact that the three Chicago area utility companies might go broke. I assumed that during the life of this pipeline that they would be solvent enough to pay for the gas they are getting from you. As far as the other customers

are concerned, I believe that they are all of the type that with reasonable credit restrictions, not allowing the bill to run too high, there will be no substantial credit risk. Not the type of risk that faces ordinary business. I don't think I meant to say at any time on any of those risks that you had not any part of them at all. They are all present, but not anything like in the proportion you find in ordinary business. I cannot conceive of the Chicago area failing or going broke.

Yes, I said on page 8043 that "another risk from which the Natural Gas Pipeline Company escapes is the credit risk." Do I have to add that I did not state positively? I said that in my direct testimony, yes. You ask what I was referring to in my testimony on that page when I said "another risk." I was referring to all the others.

You ask if in my direct testimony I have treated all of the risks that I have mentioned, namely, the risks involved in the accumulation of inventories, the risks arising out of the labor situation, the risk of overhead expense,
1775 as being escaped by defendants. (Objection by Commission Counsel to the question as distortion of the witness' previous testimony overruled.) I did not so testify, and it was not my intention to so testify. I was comparing the risks facing this company with the risks facing ordinary industrial concerns, to act as a background for a conclusion that this company is not entitled to the kind of profits that may be earned by ordinary industrial and mercantile concerns. For that purpose and for that purpose only. When I came to evaluate the risks of this company, I gave all of the risks as I saw them, with liberal leeway, in my opinion, a substantial recognition, because I heard discussing at one point 1.35 per cent as a return on substantially riskless securities and I reached a conclusion of six per cent. Now, the difference between those two is for risks. When I said "another risk from which defendants escapes is the credit risk" I meant another one of the risks which defendants do not have as the same important factor in their profit and loss situation that ordinary industry does is the credit risk. When I say a little later that the two companies have substantially no risk, I am talking about defendants. You ask if I meant by the statement "another risk from which Natural Gas Pipeline Company escapes is the credit risk" to put all of these risks in the same classification as being insubstantial. No,

as being merely another risk, which as the result of my appraisement of risks defendants are not entitled to the kind of return that is made by ordinary industry. When I used the expression "another risk" followed by the expression "escapes", I meant that in ordinary industry quite generally the credit risk is an important factor in determining the profits they are going to make, whether the credit risk is decided in favor of restricting credit and limiting sales or expanding credit and increasing sales, and that defendants, as compared to ordinary industry, have no substantial concern upon that score. That is another one of the elements of risk, and I did not testify on all of the elements of risk I could think of, but that is another element of risk that caused me to reach the conclusion that defendants are not entitled to the same kind of earnings that an ordinary industrial or mercantile concern may make.

I said there that the Natural Gas Pipeline Company escapes the credit risk and I said lower down that the two companies have substantially no credit risk, and I use that language in the first sentence in connection with the expression "another risk". I told you what the other risks were that I was referring to, namely, that I was referring to all of the risks I had been discussing down to that time. I did not regard all of those risks as being of the same type, merely as another indication. All I am doing or all that I am trying to do is to evaluate the Natural Gas Pipeline Company as against an ordinary industry. We can look at the indices of earnings made by ordinary industry and know that the Natural Gas Pipeline Company must be lower than those, if my factors are correct. Now, I tried to get all of the factors. I say in no substantial degree I can find no substantial reason for not coming to the conclusion that the Natural Gas Pipeline Company cannot be expected to earn as a fair return the same kind of profits that are earned by ordinary industry. That was the sum and substance of my thinking, and that was the sum and substance of what I was trying to present. I did not in any of these cases intend to indicate that they had no such risk or that that risk was so insubstantial that it was not to be given consideration, because, as I indicated before, Mr. Morgan, I did get over 1.35 per cent.

I used the expression to which you refer, "Another risk from which Natural Gas Pipeline Company escapes is the credit risk," because I had no conception that those words

would be interpreted as meaning that the Natural Gas Pipeline Company has absolutely no credit risk or
1776 that my testimony would be interpreted as meaning that they have no risk from any of these sources. I am merely saying that they escape the usual risk from these sources that are present in ordinary business. I am comparing the Natural Gas Pipeline Company with ordinary business. At no time have I tried to compare it with the Commonwealth Edison Company or the Peoples Gas Light and Coke Company or with investments in bonds or government bonds or foreign securities. I am talking about industrial concerns on the one hand and Natural Gas Pipeline Company on the other hand, in order to come to a conclusion on rate of return. That is all.

You ask if in my direct testimony I did not take the position that such competition as these companies have has to do with industrial gas; that there is practically no competition except as to industrial gas. I don't want to get into a repetition of the same statement. Now, I meant the competition that existed, except for industrial gas, is not important as risks go in industry; that the competition for natural gas is somewhat more important than the other, and it is closer; but still not up to the risks in general industry from competition by competitive products.

It is a difference in degree; and I think the competition in the field of industrial fuel, while of more consequence than the competition in the commercial and domestic gas fields, is not the character of competition in the ordinary industry.

I don't take the position that there is no competition with natural gas in the kitchen or in househeating. I am very well aware of the competition by electric ranges and other types of competition; but they don't have the importance that is ordinarily associated with the element of competition in ordinary industry. Theoretically, natural gas competes with any form of substitute fuel—electricity, manufactured gas, oil, coal, any specialized fuels or services that might be used for the same purposes that natural gas is used. Oh, yes, I know that there is severe competition between coal and natural gas for industrial purposes. To a gradual degree for the cooking load; yes; and in house heating there is more competition between coal and natural gas than there is for cooking. The competition is not necessarily confined to price; it is the degree of heat. Sometimes it is one or the other. I have known people in the glass in-

dustry, and the pottery industry and brick making, to say to have a good plant for those types of manufacture you need natural gas. We find them located where there is natural gas, where there is a good cheap supply of natural gas. There are other types of situations where coal might have or might obtain a fuel advantage. I am not a fuel economist, but I don't think that that is the kind of competition that obtains among the three automobile companies that I have named, the Plymouth, the Ford, and the Chevrolet. In fact the reason for that is that I don't think it has the effect on your profit and loss account that the other type of competition has.

You ask if I have known of any natural gas company that has grown from the proportions of the Ford Motor Company when it started out to its present proportion, on its own weight. That introduces a new factor. No, there is no natural gas company which is as large as the Ford Motor Car Company is; but natural gas has had a very substantial growth in certain areas. It is true that a particular company usually puts in a very substantial capital investment at the time it starts out. That is true of the exploitation of natural resources today. That was not true in the early days of the use of natural gas. I have examined the records of some distribution systems in the east that had very
1777 modest beginnings. At that time they only sold it for certain uses and for comparatively short distances. They did not pipe it for a thousand miles in those days. Defendants pipelines, as far as size is concerned, were about as large and about as long in 1933 and 1934 as they are now. I take it that the pipeline was designed with due regard to the most efficient exploitation of the gas market. No, I do not know of any effort on the part of the Ford people to prevent the sale of Plymouth and Chevrolet cars by legislation, or by imposing a tax on the other one that would make it impossible for them to sell. I don't think that is the type of tactics that the Ford Motor Company or any individual company would employ towards their competitors. That is not a part of their competitive methods. You ask if I know of any effort on the part of those interested in the coal market to do just that. They could not advocate that tax just simply on the basis of taxing the natural gas company so it would have to stay out. They would have to bring some broader reason; and before they get it I presume they will have to show some substantial reason for it. However, if such tax is imposed, I

am quite sure that it will be passed right down in the rate to your customer companies, and from them right down to the Chicago area consumers. You ask if it will be done just like the sales tax was passed on down by the Peoples Company. They did not get an increase in rate to pass on that tax because the Commission determined that it was making money to absorb it; but in all my statements on income available for return I have given 100 per cent allowance for that tax as an allowable operating expense under the law; and every Commission must allow it in fixing rates. You ask if the effort of the Peoples Gas Light & Coke Company to pass that tax on through an increase in rates was not what started the rate litigation between it and the Illinois Commerce Commission. That was one of the initial proceedings. I don't know whether that was what started it. That might have been merely the motivating cause. They might have been thinking for a year or so that they should have an increase in rates. I don't know what was in their minds. That was the first proceeding that came before the Illinois Commerce Commission that I remember. I don't know whether there were any negotiations. A company can't merely come in and say we want to talk on this, that, and the other item. They must file a schedule of rates. The Commission takes that schedule of rates and decides on the valuation of their property the proper amount of money they are allowed to make, and whether they are making a fair return, or a sufficient return. You can't change rates for one factor. If you are going to change rates, the Commission must take everything under advisement.

To repeat, I said that if any tax is levied on your company that tax will be an item of operating expense, and in determining the reasonableness of the rates the Commission must give it full allowance as an operating expense; and that therefore, if any additional tax is imposed it will ultimately go down in the price to the customer companies, and from the customer companies ultimately go down to the consumer. You ask if I am not referring to a tax at a rate that will not permit the sale of gas in competition with coal. I think that a suggestion that it would not be is rather a too far fetched assumption for me to accept. I do not think a tax which would make it prohibitive for these companies around Chicago to buy gas can be levied. You ask if I don't know that that kind of a tax has been suggested by bills actually brought in the Illinois legislature

every session since the pipeline has been in operation. I can't stop bills that are presented in the legislature. Almost any kind of a crazy bill can under certain conditions find a sponsor. I have no information as to how many of these bills have passed either of the houses of the
1778 Illinois legislature. I don't know that the Senate actually passed a bill levying a five cent tax on each one thousand cubic feet of gas sold in the State of Illinois, but if it had that is still far from levying a tax that was prohibitive for the sale of gas. A bill which will pass one of the houses is always a possibility, if you are talking again about these possibilities. You ask if that isn't what a risk is, a possibility. No, a risk is an ever present force of influences that shape your profits and your losses. A risk is not necessarily a loss. A risk might be met and become a profit, but you have taken the risk just the same. If I go out and buy securities today, I take a risk. I may make a profit or I may make a loss, but I have risked that money, and for the risking of that money I want a return.

I have taken all the risks into account. A risk to me is anything that is ultimately going to be reflected in the profit and loss account, in the earnings that you get at the end of the year, or five years, or the whole life of the property. Those are the risks; if there is a risk it is ultimately going to increase your profits or decrease your profits, or leave them the same; but the effect of the risk shows up in the profit and loss account.

1779 If some tax were passed and defendants felt that it ought to be passed on to the public, it would be done as soon as they could prove to the satisfaction of the Commission or Commissions having jurisdiction that they are entitled to pass it on; and in my opinion under regulation they would be able to pass it on more rapidly than they could under certain forms of contracts.

The sales tax that is involved in the Peoples controversy was passed and found unconstitutional and the companies received a rebate. I think it was finally determined that the companies had to pay it in 1935. The fight is still going on. They have impounded the money. If they have a right to recover it, they will get it. If they have not the right to recover it, the consumer will get the money paid the company. They have no risk from that standpoint. If they are entitled to it, they will get it.

You ask if they will get it after a fight which has already gone on since 1935. After the fight has nothing to do with

it. It is merely to determine whether they are entitled to it. They haven't a clear cut case.

You ask if an investor would assume that they were going to get it if he were dealing with their securities now or would their credit standing be impaired. I think investors would probably try to guess which way the case is ultimately going to come out. If it ultimately comes out that they will get this impounded money, that stock is a pretty good buy at the prices of the present time. If it turns out that they are not entitled to it, I think the stock is about properly priced at the present time.

I will say this, just to get one step removed from the Peoples Gas Light and Coke Company, I don't think that investors generally have anything like the widespread fear of regulation reducing their earnings below a proper return that is indicated by newspaper comment. People are still very anxious to buy public utility securities.

You ask whether it makes any difference how the tax is imposed if it be sufficient to prevent industry from buying your gas. That is right. If such a tax is levied, it will not make any difference to you how it is levied, if it results in depriving you of your customers.

You ask who is agitating for that kind of a tax in Illinois. I presume it is the coal miners, as a labor group; and the royalty owners and coal mine operators as a group of business men engaged in a competitive business. You are right; the railroads are. I was going to add that. It slipped my mind for the moment; all the railroads. I have heard many complaints of your company from a certain railroad which has very close relations with coal mines at the present time. I know that there is agitation among those three groups of people, the railroads, the coal operators, and the coal miners, demanding that the state take natural gas out of competition with coal. When you say "very strong," I don't think it is as strong as the agitation against chain stores. I don't know what you mean by the term "very strong." Give me the basis of it. There is a strong sentiment among all these people that there ought to be levied a tax on natural gas which will take it out of competition with coal.

You ask if there exists a substantial risk that these companies may find themselves confronted with that kind
1780 of a situation. If you mean by substantial risk that there is some possibility, the answer is yes. If you mean that it is something which really deserves special

consideration to the extent of, well, you name your figure and we might come to an agreement—but that is too vague and general a question. There is some element of risk there, yes.

I have no intimate acquaintance with the report of the Natural Resources Committee to the President of the United States, and by the latter transferred to Congress. I know there was such a report. I heard something about the recommendation in that report for the setting up of a public resources commission which would have absolute control over the production and the use of power, coal, natural gas, and oil in this country.

You ask if the objective was to regulate natural gas for certain purposes, and that oil be used for certain purposes, electricity for certain purposes, and that coal be used for certain other purposes, each to the exclusion of the other. There was some such arrangement proposed. I don't know whether, following the receipt of that report by Congress, a bill was introduced with the objective of putting that recommendation into a legislative act.

I think Mr. Frederick A. Delano was head of the Natural Resources Committee which I suppose made that report.

You ask if I remember that the President in forwarding it to Congress recommended that it be given serious consideration. I think it probably deserves serious consideration.

You ask if I thought that that raises a risk confronting natural gas pipelines which derive a major portion of their revenue from the sale of gas in competition with coal for industrial uses. I am firmly convinced, regardless of what happens, that your property will not be confiscated, and that you will be allowed a fair return on the fair value of your property.

You ask if I think there is any risk involved there of such substance that it is entitled to any consideration in arriving at a proper rate of return for defendants. Again, I am evaluating all the risks; not finding an absolute factor as to the effect of each one. I am not trying to determine each individual risk, how much it existed, or how much shall I allow for it. I have compared the risks of this company from various sources, compared with the risks of various industrial business; and I have reached the conclusion that it is a low risk from that standpoint, and therefore it should be allowed a lower return, and I think I have allowed a return fairly compensatory for all the

risks involved without undertaking to find how much is involved in each individual risk.

We are not trying to evaluate these risks separately. That is not my testimony. My testimony is that the natural gas industry has less risks than industry in general. That is my statement, and from that I draw my conclusions. I considered a great many risks which I did not discuss.

You ask if I considered the competition with coal, or the imposition of a tax, or direct intervention by the government which says that defendants can't use gas for fixing boilers. The answer to that is that in my judgment no such risks exist, because your companies' property will not be confiscated, and you will be allowed to earn a fair return on the fair value of the property, or receive
1781 compensation for your property, regardless of what laws are passed. I did not consider that any such risk would exist in determining what I concluded to be a fair rate of return. I did not give those two factors, which we have been discussing, consideration alone. I gave no consideration to the fact that a law might be passed which would put you out of business without your getting something for it. I certainly think a rate of return that did not make any allowance for that risk could still be a fair rate of return.

You are right, in my direct testimony, I have been talking, down to this point, about risks that were not mentioned by the company witnesses who testified on rate of return. I had in mind the industrial statistics that were put in one of the exhibits sponsored by defendants. The whole tenor of my discussion of risk is that the Natural Gas Pipeline Company is so situated from a risk basis that it does not deserve the similar kind of returns that are made by unregulated industries in general.

You ask whether in my testimony I was relating it to the industrial statistics the company had offered. Yes, after all, when we are discussing a rate of return we are faced with this problem; that most regulated industries are earning returns that are fixed by Commissions, with the exception that very often they get a little bit ahead of the Commission and are making an excessive return. Now, it is, therefore, difficult to find what rate of return is allowable for a utility, because those returns are regulated by Commissions. For that reason a great many people are introducing statistics on returns earned by industrial companies. I merely wanted to say, if I use returns earned by

industrial companies, I must be appreciative of the fact that the Natural Gas Pipeline Company cannot earn that amount of return, because it does not undertake that much risk, and that I have a perfect right to send the return of the Natural Gas Pipeline Company below that made by industry generally. That is the whole purpose of my discussion of risk.

I have read the testimony of the rate of return witnesses who testified on behalf of the companies. You ask if any of them mentioned as elements or factors entering into the judgment that they reached on the proper rate of return any risks as to inventory or overhead or labor disturbances. They did not so mention. And in my opinion that is the weakness of their testimony, that when you are appraising risk you cannot pick out these three risks or six risks or ten risks as present in the natural gas industry without discussing them relative to other industries that you are going to use as your standard for arriving at a conclusion of rate of return, and without taking into consideration all the risks of all kinds of business.

You ask if I know whether or not they took them into consideration. In my judgment they didn't if they reached eight per cent. There is nothing in the record to indicate that they took into account the situations of these companies on those particular elements, which I have discussed, or that they did give consideration to these elements of risk. As I stated, there is no indication in the record to show whether they did or did not. I concluded that all things considered that they did not, and that they certainly did not draw the attention of the Examiner or of the Federal Power Commission to the risks existent in normal business, which are not present to anything like that degree in this business. Yes, they were talking about the risks confronting the natural gas business. I have not enumerated all of the risks that I considered in arriving at my judgment.

1782 You ask if there was any less duty on my part to state all of the elements and all of the factors that I considered than there was on the part of those men who testified for the companies. I at least pointed out the risks on both sides, those where the one is greater than the other, those where the other is greater than the one. I am trying to give an evaluation of risks to present some additional information to the Examiner and to the Commission on that point. I did not think it was necessary to

elaborate any further in the light of the fact that Mr. Booth's question originally was: Will you mention a few of them? And I could have talked for two more days on risk very easily.

You ask me to show you some place where I pointed out in my direct testimony any risks which I said that defendants are confronted with to a greater extent than similar risks confronting other businesses. I made no specific mention of the risks, but I gave them consideration. I thought certainly, to my mind, that if the risks that the company experts had talked about had been fully covered to all the degree that they should be covered, the Federal Power Commission could evaluate how important those risks were. I merely wanted to point out the other side of the problem, and with respect to one particular kind of risk that they elaborated on, to differ with the opinion of your experts. In the ones in which I differed with them, I stated my views.

Redirect Examination Interposed by Mr. Booth.

You ask if I mean to say that I agree with the other points they covered in their testimony. I am not disposed to argue that there is no risk there. There are some risks in these companies. It is more along some lines; it is less along others. By and large the average balance that I strike is that they have considerably less risk than an industry.

Cross-Examination by Mr. Morgan Resumed.

No, I did not feel it necessary to point out the risks that confront the natural gas companies and which do not confront other industries to the same degree.

You ask if I think that the defendants' witnesses should be criticized because they did not enumerate all of the risks that I have enumerated here. They should certainly have given the Examiner and the Commission enough indication to show that they considered this question of risk proper and one on which they could have reached a judicial decision.

You ask why I didn't do that. The answer is because I am the second set of witnesses. Their evidence is in. It is before the Commission. They know all about that. Why should I go over them and try to whittle down because I

think they put it a little strongly? But I am saying now that the Examiner knows that. I merely want to point out the other side of this picture for the purpose of arriving at the conclusion that I arrived at, taking into consideration the risks that they pointed out, those that I pointed out and those that are still unmentioned in the record, that this utility does not deserve as high a rate of return as an industry does.

You ask what I mean by industrial institution when I make that statement that defendants are not entitled
1783 to as high a rate of return as an industrial institution. I am speaking of the steel industry, the motor industry, general manufacturing industry, shipping, copper mining; industries where the prices and profits depend upon competitive conditions and the ability of the management to meet those competitive conditions. Among others, I am talking about General Electric, General Motors, Radio Corporation, Marshall Field, the moving picture industry, the companies that are making the losses and the companies that are making the profits, the companies that are in profitable lines of business and the companies that are in unprofitable lines of business, all of them. I am talking about the oil companies also. I do not think defendants should earn as much as the oil companies.

You ask if I know how much less they ought to earn than the oil companies, General Motors, Radio Corporation, General Electric. I am trying to take all of those industries, the good years that they have and the bad years that they have, and determine from that about where in the scale of return, from 1.35, let us say as the bottom point, up, what fair return for this company should be fixed. I think that is our problem in this thing.

You ask to what extent have I studied the returns of these companies, which I say ought to be greater or higher than the returns of defendants. I am generally familiar with the results of business. I have looked at some of the results. I took the trouble to take down certain statistics on some industries. For 1937 I have some of the automobile companies down in detail and general figures on agricultural machinery, implements. Let me see. There are 18 sets of average figures that I took a good look at, to see where they are, what they are making.

This particular compilation comes from some studies compiled by a PWA project, I think it is, from S. E. C. filings. I took off data on sales, net profits, depreciation

depletion, because that is a factor in here. After all, when you are looking at return, you look at how good is depreciation depletion, how good is this company, how many of them make profits, how many of them make losses, what is the relationship to sales, what is the relationship to net investment. I have the balance sheet statistics. I took a general look as to what they are. I did not get this information from Mr. Gilman's exhibit. Yes, I saw his exhibit, but this is not the same information. You can check it, if you want to.

You ask why I prepared this list of risks, which I say exist in industrial enterprises to a greater degree than in business of defendants, in the preparation of my direct testimony. I prepared it to present some additional information to the Commission on the subject of the comparative risks faced by this company as compared with industry generally, for the purpose of arriving at a fair rate of return.

You ask if I prepared it on the theory that testimony had been offered by defendants that because some industry or group of industries earned a certain percent, that defendants ought to be permitted to earn the same percent, and if that was my understanding of the testimony at the time I prepared the data from which I testified on direct concerning these risks we are talking about here today. It was necessary for anybody reaching a conclusion on the question of rate of return. In the first place, that is the duty of witnesses. After that it becomes the duty of the Examiner and then of the Commission to make that
1784 decision, that there should be a more complete discussion of risks than was available, in the record, some further data. I then went on after I thought I had amplified the record on the subject of risks and testified to my conclusion on rate of return.

The figures I have handed you are not Mr. Gilman's exhibit. My working papers were always available to counsel for the company. The sheet I have just handed you is really a sketch sheet, not working papers, to get some data down, to get my mind down on something, so I merely presented it to you to show that it was not Mr. Gilman's exhibit. I just wanted to show it was something I prepared myself, and that it was not Mr. Gilman's exhibit. I have had all of the free ones in my office for quite a while, that I used from time to time to get oriented. I did not take all

of them. I know what the reported earnings of General Motors were last year. I don't remember.

You ask whether the earnings of industrial companies like that enter into my judgment of a proper rate of return for defendants. I took generally the rate of return earned by industry, that it was earning its return purely on the basis of competitive conditions and the ability of the management to meet those competitive conditions, because that is our base. I think the whole problem of regulation is to substitute for competitive conditions regulation, and that what a utility should be allowed to earn is giving full account to all of the risks for a return that is equivalent to what it would earn if instead of regulation we had competition, such that there would be no more risks.

Now, that is a rather difficult thing to get to, but, basically we have what are returns earned by investors of capital generally, in all kinds of fields, starting from the highest form of security, which has the lowest guarantee, going right up to the most speculative venture—what do they all get—and then going up to this condition here, with its sheltered position, its lack of risk, as to what is fair for them to earn. That is our problem in deciding on a fair rate of return.

You ask me what I mean by the sheltered position of defendants. I mean as compared to ordinary business they have a very substantial lack of risk, that capital usually recognizes that investment in utilities is a safer investment than it is in business generally.

You ask if I mean natural gas companies or all utilities. I mean all utilities, even those that have gone bad. Electric utilities are the highest, telephone, water companies are better than some telephones, but that whole field is superior.

You ask if, as a matter of fact, it isn't my judgment that these pipelines ought to be allowed a rate of return such as is commonly allowed electric utilities, and if that isn't the real basis of my judgment in this case. I go further than that, they should be allowed even less than most electric utilities. Yes, even less than most electric utilities, because I think they have substantially less risk than most electric utilities. Let me give you an example. Let us take the Commonwealth Edison again, if you please.

1785 In 1939 the Commonwealth Edison issued $415,000,000 worth of bonds to run for 40 years. Now, that is risk, 40 years. Since then World War II has

started. We hope it will end. But World War III might start. Throughout that long period of 40 years all of the economic forces of this world will concentrate on the value of that bond issue. It is not even a saleable bond issue. A few insurance companies took it. It is listed on no exchange. Before they can let those bonds go out they will have to inform the public that the insurance companies are selling and want the public to buy one hundred and fourteen and one-half million dollars worth of bonds for 40 years. And for what? 3.16 percent interest. Now, that is what money is worth, 3.16 percent interest. That is set by the shrewdest buyers of securities in the United States.

You ask if that is a cost to the company or yield to the investor. I forget now which. Both of them are very close together. 3.16 percent sticks in my mind.

I hope Mr. Morgan understands what I mean now in general. In other words, they have got 40 years to go. They have a risk until they go broke, because that is the end of all corporations, except yours, Mr. Morgan, because you are going to get your money back in 1954. Most corporations will ultimately wind up in bankruptcy. It happens to most of them. They cannot liquidate. Just as the end of most people is death, the end of most corporations is bankruptcy. But not yours. You will have your money back by 1954, maybe twice over. That is the reason I say that your company has less risk than the Commonwealth Edison.

You are finished in 1954, with your money back.

You ask what is the rate of return allowed Commonwealth Edison Company at the present time. I made no such investigation. In the last rate case the Commission found that it was not unreasonable to permit the company to earn 6.3 percent.

Redirect Examination Interposed by Mr. Booth.

You ask if I am not thinking about the Public Service Company of Northern Illinois rate case. That might be. I give my testimony. After a case is finished I have nothing to do with it. I don't care whether there is a rate reduction or not. I am an accountant. I want to get the facts in the record.

Cross-Examination by Mr. Morgan Resumed.

You ask if in the Peoples case, reviewed by the Circuit Court of Illinois, over which Judge Klarkowski presided, the observation was not made by the court that the risks in the gas distribution business were greater than those in the electric utility business, and on that basis did he not fix the rate of return at 6½ percent to the Peoples. He might have done so. I still think I am more nearly right than he was on the subject.

You ask what study I have made as to the comparative risks of defendants and of electric utilities, of gas distributing utilities, and of natural gas integrated companies. I made no formal study, but I gave considerable thought to: Should this company get a better return than other companies; should the natural gas industry deserve
1786 a greater return or a lesser return than your large distributing utilities, like Commonwealth Edison, of your scattered distributing utilities like Central Illinois Public Service, whether it deserves a better return than a manufacturing company does, or a lower return. I made no formal studies in the sense of getting research together, as to how many companies die and how many live, and how many are prosperous and how many are not prosperous, but I gave considerable thought primarily, though, to your two companies.

You ask if that was in relation to manufacturing companies. Yes, to manufacturing companies, and then I finally got down to—I started all the way from government bonds up to highly speculative industries and tried to get wherein between does this company fall, how would I compare it with this and with that and with the other.

You ask where I got the 6 per cent. I got it primarily on the basis of what I thought this company could finance at, what I thought this company could sell its stock and bonds for. I made a few rough calculations and decided it would be a good company to finance with serial bonds, and what would they require, and then common stocks for the balance, what would that take, and, as I remember it, I originally got about 4¾ per cent, and I upped it.

You ask if I upped it from 4¾ to 6. No, I did not, not from 4¾ to 6. From 4¾ to about 5½, for other factors, leeway, and to bring it some place, and finally I said there is a war on and I don't know whether they can do it for

seven years, because when I was making this study the war was on and there had not been any security issues, prices were going haywire, nobody knew the future, and from the point of view of being absolutely sure that I was giving a liberal return, one that I could substantiate from any point of view, I finally decided on six per cent, with a rough guess, and that certainly under the worst condition now prevailing this company's securities would sell at par, if their bonds are paying four per cent and their stock is paying eight, and I don't think that anybody can deny that.

The fact that many electric utilities and some gas distribution companies have been allowed six per cent return and that these pipelines are among the public utilities had something to do with the judgment at which I arrived. The rate of return fixed for utilities by our Commission particularly, the general tendency that nowhere Commissions are fixing returns today, did have something to do with it. It was not primary, but that resolved part of the background of my thinking. Primarily I started with the calculation as to what would this company get to, where should it get to; where did this company get to from the point of view of financing, what would it bring out. You are right, I made no distinction between the character of these two pipelines, from the standpoint of the risks involved, and of electric utilities and of the distribution utilities, except that I reached the conclusion that they have less risks or fewer risks than do those distributing utilities. I did make a distinction. The distinction was that they are entitled to a lower rate of return than an electric utility or a gas utility.

(At this point the Commission Counsel called upon the company to produce a report of Ralph E. Davis, Inc., Engineers, dealing with the natural gas supply and values of gas producing properties of Texoma Natural Gas Company, as of January 1, 1938. Company Counsel objected to making the report available on the ground that it did not show the reserves in the Texas Panhandle Field in any respect. At this point Counsel for the Commission produced a three page document described as being a photostatic copy of request for voucher on Natural Gas Pipeline Company of America, in favor of Ralph E.
1787 Davis, Inc., Engineers; office copy of the check to Ralph E. Davis, Inc., Engineer; check of Natural Gas

Pipeline Company of America, and bill rendered by Ralph E. Davis, Inc., to Natural Gas Pipeline Company of America, dated June 14, 1938, with the request that it be marked as an exhibit. At the direction of the Examiner, the document was marked Exhibit 201 for identification. EXHIBIT 201 was offered and received without objection.)

1788 W. C. GILMAN, a witness for defendants recalled for redirect examination, testified:

(December 12, 1939.)

Redirect Examination by Mr. Hedrick.

In response to questions I testified in the record at about page 6297, that I believe the most appropriate capital structure for an enterprise of this kind is either not more, and preferably less than, 50 per cent in the form of senior bond securities and 50 per cent or more in the form of common stock. I added that, preferably I would say between 40 and 50 per cent in bonds would be best.

You ask for my reasons for that statement. I did not make any provision for preferred stock because I do not believe that it is economically feasible or desirable to finance a company such as the Natural Gas Pipeline Company of America or the Texoma through the use of preferred stock.

A traditional method of financing public utility distribution companies in the past has been to assume 50 per cent bonds, 25 per cent preferred, and 25 per cent in common. I think that there is some question as to the soundness of that traditional method, even with old established distribution companies. And I would say that in my opinion that it is not economically sound or desirable or feasible to finance a natural gas pipeline company with the use of preferred stock.

I think that is pretty clearly indicated by what has taken place in the industry. Mr. Smith's exhibit, No. 186, examining some thirty odd natural gas companies, or companies that he selected which had certain attributes, namely, transmissions and production, or transmission, but also including distribution companies, showed in all those cases companies with securities outstanding of over a bil-

lion dollars, with only some $60,000,000 preferred stock; and of that $60,000,000 only about $34,000,000 was stock that was held by the public, as opposed to the other $26,000,000 shown as being held by affiliates.

Now, even of that $34,000,000, all but about $2,000,000 was preferred stock issued by companies with great distribution facilities; namely, Southern California Gas Company, which had more than $20,000,000 of the preferred; and Oklahoma Natural Gas Company, which had distribution facilities throughout the State of Oklahoma, which had some number of millions of preferred.

Of all the preferred stock shown in Mr. Smith's exhibit, only something less than a couple of million dollars was the preferred stock of a natural gas pipeline company, namely, the El Paso Company.

This industry historically has not used preferred stock as a financial vehicle. It is understandable because the pipeline companies who finance through the use of debt, are required by investors to have debt with a modest term, and debt with heavy sinking funds that usually pay the debt over a relatively modest term of years.

Any industry that puts out a debt of that kind, with heavy sinking fund, is taking a chance if at the same time it issues a preferred stock with cumulative pro-
1789 visions. There have been very few issues of preferred stock in the past by pipeline companies. The largest issue that I can think of by a pipeline company was that of the Southern Natural Gas Company, while it was being promoted, and which eventually got into receivership, and the people who bought the preferred stock lost their position and received common stock in the reorganization, a class of common stock in the reorganization. When they reorganized it they reorganized it with bonds and common stock; in the first instance two classes of common, and later in proceedings during 1939 changed into one class of common stock.

Questions Interposed by the Examiner.

You ask whether the features are approximately the same when I group those companies in Exhibit 186 according to those which are financed mainly through affiliates and those which are financed mainly through public offerings.

That is right. Schedule 5, page 6. You will note that in these some thirty odd companies, which had total securities outstanding of a billion and thirty-eight million, that the total amount of the preferred stock in that aggregate was about $60,000,000, or about six per cent. Now, of that six per cent, about 3.3 or .4 per cent was held by the public, and the remainder by affiliates, as classified by Mr. Smith. Preferred stock that is held by affiliates is essentially the same as the common stock, in that it does not represent a preferred stock in the hands of the public.

Redirect Examination by Mr. Hedrick Resumed.

At page 6430 of the record, I testified that I had never said that because they had low taxes there was any special risk. I said that the possibility of increased taxes was a very definite risk; and the fact that the taxes were at a low level now made them particularly good prospects for the taxing authorities who were short of money. I also testified at that point that it follows for that particular factor that the lower the taxes the higher the risk and the higher the taxes the lower the risk. I think my statement there and my testimony in the same direction needs an explanation.

The point in my opinion is that if taxes of any particular company in an industry, or of any particular group of companies in an industry, are lower than the taxes of other companies or lower than the taxes of other groups of companies, that that particular company or that particular group in this day and age, when taxing authorities are pressed for finding funds, is a good prospect for additional taxes.

And while it is true that under regulation theoretically taxes are included in operating expenses, it is nevertheless the fact that if the burden of taxation of any particular company or any particular group is increased substantially at any one time, there is always a lag in getting back from the rate payer what you have to pay out in the form of taxes.

That is not completely theoretical with me. For a number of years with the Equitable, where I investigated and made recommendations with reference to the purchase of utility and other securities, we were very careful about

the purchase of utility securities in the State of Pennsylvania.

1790 In the State of Pennsylvania at that time public utility companies did not pay taxes based on the property in the communities which they served. They had some form of gross receipts taxes of some character; but they did not pay taxes anywhere near commensurate with the taxes being paid by utility companies in neighboring states.

We were always afraid to buy the securities of Pennsylvania companies, and consciously stayed away from them, because we were afraid that the taxing authorities would get onto that fact in Pennsylvania, and at any one time step up the taxation of these companies, at which time the times coverage on the securities would have been reduced and the securities would have had a tendency to go down in price. We would demand a higher return for the securities of the Pennsylvania companies for that very reason.

Recross Examination Interposed by Mr. Slaff.

You refer to my statement in substance that while it is true that taxes were always considered a part of the operating expenses, there was always a lag in getting back from the rate payers the additional amount of expense incurred through additional taxes. You ask if there is a relative lag on the part of the consumers where the company under regulation may be earning what is considered or what is more than a fair return, in getting the return down to a fair return.

I think that is right. If a company is earning more than a fair return, and that is decided perhaps in a rate case; the new return only applies, from the termination of the rate case. These things can't be retroactive, as I understand it.

You ask if there may have been a return which goes above a fair return with no immediate reduction to the fair return, whatever that might be. That is asking me to generalize, Mr. Slaff, I don't know. I think in some properties, in some jurisdictions, the regulation has been awfully close.

Redirect Examination by Mr. Hedrick Resumed.

Beginning with line 12, on page 6467, of the record, I testified, in substance, that for a number of years, the gas industry has been suffering in competition and has lost substantial amounts of its domestic business. That statement was intended to apply as the record says, generally speaking, but it also does apply to the local distributing companies.

You ask what I meant by the use of the words "gas industry", appearing in line 13, page 6467. By "gas industry" I meant the total gas industry. I think in that connection we have to pay also attention to the statistics of the manufactured and mixed gas industry to get any degree of comparability. As to the development which has taken place in the natural gas industry alone during the past few years the statistics are not sufficient to tell us exactly what is going on because of the large amount of natural gas which has been brought in de novo to new communities. Therefore, the major basis of my statement "for a number of years, the gas industry has been suffering in competition" refers to the manufactured and mixed gas industry, the industry which includes the three Chicago utilities who buy the gas from the Natural Gase Pipeline Company of America.

1791 They sell a certain amount of natural gas direct to industrial consumers but primarily serve mixed gas, and they are included in the statistics in Exhibit No. 194. The foreword in Exhibit 194 states, "Companies selling mixed manufactured and natural gas are included in these data."

In Exhibit 179 the contrary statement appears. The statement appearing in the foreword of Exhibit No. 179 says, "Companies selling mixed manufactured and natural gas are not included in these data." For that reason I used the statistics of the manufactured gas industry as applying to the customers in the Chicago area of defendants.

You ask that I proceed with my explanation of the figures in Exhibit 194. From page 14 of Exhibit 194, the revenue in 1929 was $408,737,000. That had declined in 1938 to $360,494,000; a decline of approximately 12 percent during that period. The gross corporate income which was $123,409,000 in 1929 had declined to $67,570,000 in 1938, or

a decline in the amount available for fixed charges of approximately 45 percent. The net income available for dividends and surplus amounted to $82,204,000 in 1939 and had declined in 1938 to $23,030,000, a decline of 72 percent; these declines taking place in a period during which plant increased from $1,825,000,000 to $1,967,000,000 and as shown on page 6 total customers increased from 9,690,000 to 9,941,000.

As further shown on page 6, the domestic business of the companies in this industry has shown substantial declines; taking the gas sales to consumers in millions of cubic feet, in 1929, amounting to 254,769, which declined to 197,052 in 1938.

Similarly, revenues which in 1929 from domestic service amounted to $313,955,000 had by 1938 declined to $258,357,000.

The tables on page 7 show what has been happening to the domestic customer in this business. In 1929 the average domestic customer took 27,600 cubic feet of gas for which he paid in that year $34.06. By 1938 his consumption had declined to 21,300 cubic feet of gas for which he paid a reduced amount of $27.94.

I think it is apparent that this industry has been suffering in competition and has lost substantial amounts of its domestic business.

Questions by the Examiner.

You ask if the data on the page where it is designated Schedule 1, Exhibit No. 186, have to be considered in connection with the statistics I have just read; that is, whether it would be proper to go one step beyond the statistics I have just read and add in the data in Schedule 1, Exhibit No. 186.

Those are all natural gas statistics. I don't think they can be added. Those statistics have to be read, I think it is proper to consider them, but just how much weight you can give them in comparison with these statistics is a matter which each person has to decide for himself in this case.

The gas sold by the Natural Gas Pipeline Company is 1792 sold to companies whose figures appear in here. By "here" I mean Exhibit No. 194. The figures contained in Exhibit No. 179 are the figures for companies that sell only natural gas; and we have had such an exten-

sion of natural gas to new communities during the last decade I don't know just how much reliance can be placed upon them in trying to get an over-all picture of what is happening to the gas industry, looking at it as a whole.

A little later I have certain statistics which I have prepared here for the three utility companies in the Chicago area. I think perhaps they might go some way towards answering your question.

Yes, those are the statistics which we have already referred to in connection with the reports I have obtained from the Illinois Commerce Commission.

Redirect Examination by Mr. Hedrick Resumed.

Commencing at line 11, page 6473 and continuing on the following page, I stated, in substance, that the gas industry had lost substantial amounts of its domestic business; and that I intended that this statement should apply to this case; that when I talked about the domestic business, probably it is apparent that I was speaking generally, but that the distributing companies, the Peoples and the Western United, the Public Service of Illinois have, over a period of years, been losing domestic business.

In response to further questions, I stated that those companies have more domestic customers, but revenue is what counts; that their total revenues are higher than they were 5 or 6 years ago, but lower than 10 years ago.

(At this point counsel for defendants handed to the reporter a document entitled "Data on Sales, Revenue and Customers, Peoples Gas Light and Coke Company, Western United Gas and Electric Company, Public Service Company of Northern Illinois, Witness, W. C. Gilman", with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 202.)

The statistics contained in Exhibit No. 202 for identification are statistics of Peoples Gas Light and Coke Company, Western United Gas and Electric Company and Public Service Company of Northern Illinois, particularly with respect to gas sales, revenues, customers and per customer figures. The exhibit was prepared under my direction and the information which is the basis of the exhibit was obtained from the companies named.

Questions by the Examiner.

You ask if that is from their annual report to the Illinois Commerce Commission.

No, that was not possible—we examined the annual reports to the Illinois Commerce Commission, and in order to have the entire exhibit more along financial lines, where we can get comparable figures we have used the reports of the Illinois Commerce Commission, but unfortunately, back in 1929, 1930, and 1931, the reports required by
1793 the Illinois Commerce Commission in the way of breaking down the figures were not in anywhere near the detail that is required today. Generally, the revenues were reported simply by rate schedule. You couldn't find out whether the rate schedule included domestic or commercial or a combination of both. So we have had to obtain figures from the company, set up by the company, and we believe they are comparable, but, of course, the notes at the bottom of each page must be taken into consideration when interpreting the statistics.

I think that the statistics are available to investors. I don't know whether—yes, I can say that those statistics are available to the public, maybe not in exactly this form, not exactly set up this way, but the break-down and things like that are furnished by the companies to such services as Institutional Utility Service which is a financial service available to investors which gives a detailed breakdown of operating statistics and such matters for utility companies. Yes, I have that service. Most of the investors that are engaged in investing in this industry have the service in their files.

You ask what were my immediate sources in connection with this case. I requested information along this line from Mr. Hedrick when I first started working on the case. I think he passed on my request to the companies, I think possibly through Chicago District Pipeline Company. Anyhow, within a short time I was furnished with a portfolio of information along this line which I used in forming my opinion in this case. The material I received was typewritten. I have in my portfolio sheets which I can show you, this Institutional Utility Service, for example, which contains this same information. It is published by Institutional Utility Service.

I don't think I have checked every figure in Exhibit 202

with the data contained in that Service. I have compared certain figures. I have spot-checked it. In other words, I attempted to establish the validity of my figures in Exhibit 202 against this service and against other manuals. I am satisfied the information in here is correct information. As a matter of fact, the statistical department of the Peoples Gas Light and Coke Company puts out a printed sheet similar to this first sheet in this exhibit. I don't know just how wide the circulation of that sheet is. I have a copy of it here, I think. I don't think Moody's and Poor's publish this information in all the detail there is in that sheet; for example, in that one sheet for Peoples Gas Light and Coke Company. I mean a sheet put out by the statistical department of Peoples Gas Light and Coke Company. There are two more sheets right along with it. I would like to keep them together.

I should say that the information with reference to recent years is available in the reports to the Illinois Commerce Commission. You couldn't get the whole ten-year period in a comparable way from the reports to the Illinois Commerce Commission. That is what I feel should be done to indicate the trends.

Redirect Examination by Mr. Hedrick Resumed.

I will now go over Exhibit 202 by pages:

1794. Page 1 of this exhibit shows data on sales, revenue and customers for Peoples Gas Light and Coke Company.

The figures are broken down, both for revenue and gas sales, by customers, during the years 1928 to 1938, inclusive.

The average customers are shown during each year, and certain statistics, such as revenue per therm and average gas sales in therms, are set up on a per customer basis; in addition, annual revenue was set up on a per customer basis.

It will be noted that the 1938 figures are set up on two bases, the Notes A and B explaining the bases.

1938 A shows the figures including $2,667,371 arising from rate increase still in process of litigation, and 1938 B excluding the item of $2,667,371.

In view of what I have been told this morning, that the

decision of the Illinois Supreme Court has come down with respect to the increase, I am not sure but what we should exclude the 1938 A figures.

Recross Examination Interposed by Mr. Slaff.

You ask if I think that decision is going to end the litigation right there. I haven't any basis for forming any judgment on that, Mr. Slaff. I just don't know. However, I think we should probably consider it on both bases. It is set up here in that way, and that is the way I intended to portray it.

Taking the revenues from sales to customers during this period, it will be noted that from 1928 to 1938 the total revenues show a slight increase if the rate increase is included and a slight decline over this period if the rate increase is not included.

Looked at from the standpoint of domestic revenue, it will be noted that there has been a decline on either basis, and that excluding the rate increase the decline has been from $23,074,000 in 1928 to $19,404,000 in 1938.

Redirect Examination by Mr. Hedrick Resumed.

That is the second column of figures under the heading of "Revenues From Sales to Consumers". It will be noted that space heating, for which there was a note, has increased substantially during the period 1928 to 1938, that commercial revenues have declined and that industrial and miscellaneous revenues have increased.

Similarly, in the second tabulation on the left-hand side of the page, it will be noted that the total gas sales in therms have in the period 1928 to 1938 more than doubled, that gas sales to domestic customers in therms have declined from some 121,000,000 in 1928 to 113,000,000 in 1938.

The third tabulation on the left-hand side of the page shows the customers, and it will be noted that during
1795 this period 1928 to 1938 total customers have increased, that domestic customers have increased, that space heating customers have increased substantially, that commercial customers have declined, and that industrial customers in number have declined some.

Going to the right-hand side of the page, where the figures shown cover the period 1928 to 1938, on the basis

of revenue per therm, generally speaking there have been declines in all classes of sales,—total, domestic, space heating, commercial, industrial, and miscellaneous.

Of course, this period 1928 to 1938 covers the period of the change-over which took place in the latter part of 1931. I refer to the change-over from artificial gas to a mixed natural and artificial gas.

For the Peoples Gas Light and Coke Company the average annual sales per customer in the period have increased substantially, while the average annual sales to domestic customers have declined from 157.6 therms in 1928 to 143.9 therms in 1938.

During this same period there has been a great increase in the average annual sales in therms to industrial customers.

The average annual revenue per customer figures which are shown in the bottom tabulation at the right-hand side of the page for the period 1928 to 1938 show substantial fluctuations during the period.

I think one of the most significant figures or sets of figures in this whole exhibit is the revenue and sales and data concerning domestic customers, because it will be noted that this company derives, at the present time, 60 percent of its revenue from its domestic customers and they are probably properly considered as the backbone of the company's business.

In 1928 the average revenue received per domestic customer was $29.91. That has declined in 1938 to $24.68, excluding the rate increase, or $28.07, including the rate increase. I think the $24.68 figure at this moment is the most significant.

Turning now to the second page, headed "Western United Gas and Electric Company, Northern Division," similar data was prepared on sales, revenue and customers for the Northern Division of the Western United Gas and Electric Company.

The northern division is shown, because that is the division of this company which receives gas indirectly from the pipeline of the Natural Gas Pipeline Company of America. The Company has a southern division which furnishes artificial gas, I believe, to southern Illinois.

The figures here, again, follow somewhat similar trends. The revenue from sales to customers of this company has increased from $3,700,000 in 1928 to $4,200,000 in 1938, but

the domestic revenue has declined from $3,290,000 in 1928 to $2,702,000 in 1938.

The number of customers of the company has increased from 82,136 in 1928 to 88,941 in 1938.

1796 The average annual revenue per therm has shown a rather wide variation.

This, again, covers the period of the change-over to mixed gas.

The average annual sales per customer shows a substantial increase largely accounted for by the substantial increase in industrial sales. Insofar as domestic sales per customer are concerned, they show a decline from 159.7 therms in 1928 to 147.2 therms in 1938.

The annual average revenue per customer shows an increase overall from $45.62 in 1928 to $47.32 in 193[illegible] but from the domestic customers the annual average revenue has declined from $40.48 in 1928 to $32.37 in 1938.

Sheet No. 3 is prepared on a similar basis. It should be read along with the notes at the bottom of the page.

This page 3 shows the data on sales, revenue, and customers of the mixed gas territory of Public Service Company of Northern Illinois. It is necessary to separate the statistics, again, of this company, because certain of the territory served by the company is served with mixed gas. Certain other smaller portions of the territory are served with straight natural gas. So in order to have any comparability we have to keep the statistics separate, and I understand the company sets up its figures that way.

The total revenue shows an increase from $6,447,000 in 1928 to $6,735,000 in 1938.

During that period the domestic revenues have declined from $5,249,000 to $3,755,000.

I want to call particular attention to Note 2 on space heating, which shows the basis on which a division is made between these two types of customers.

Space heating in that column there, under revenues, includes the cooking and water heating as well as space heating used by those customers classified as space heating customers.

The company for a space heating customer has only one meter, so all that gas that that customer uses goes through that one meter and it is impossible to say just how much is used for the ordinary purposes of cooking as opposed to the amount used for space heating. That is

one of the deficiencies in our statistics, and we have to use them the best way we can.

I think there is no doubt that some domestic is included in this space heating and the note so indicates.

There is a note on the Peoples' sheet under space heating, which says: "These figures include space heating only. Domestic consumption of these customers is included in domestic."

I am not sure but what some estimates have to be made in making that allocation in the case of the Peoples Company, but that is the way the allocation is made by them.

1797 So I think it is necessary in interpreting that decline in the domestic business of the Public Service Company shown on page 3 to take into consideration the fact there is certain domestic business among those space heating customers, but how much we do not know.

The customers of this company have increased substantially during this period. This company's territory is a growing territory.

I am not going to take the time to go over all the per therm and per customer statistics. The trends are apparent. But they should be read in the light of the notes which I have already indicated.

On the fourth page, we have data concerning the natural gas territory of the Public Service Company of Northern Illinois. That shows for that company data on sales, revenue and customers in the natural gas territory of this company, and the same note on the space heating business applies, that the third column there, under space heating, includes cooking and water heating, as well as the space heating for those customers which are classified as space heating customers.

Question by the Examiner.

Yes, prior to 1932, this territory was supplied by artificial gas. I don't know all the details, but they decided to change over there to straight natural, possibly because they did not have production facilities or the production facilities in that territory were old and it was deemed advisable to go to straight natural gas, whereas in the other portions of the territory it was decided to use a mixed gas.

Redirect Examination by Mr. Hedrick Resumed.

The second or middle table on the fourth page is on the basis of therms. You ask whether I have an opinion or judgment as to the effect that these general trends have upon investors in this particular type of utility.

Yes, the trends displayed by the domestic business, which furnishes a large portion of the revenue, and which is the high rate business, are in my opinion not healthy as compared with the electric industry; and in my opinion the prevalence of those trends has made investors skeptical of the future of the business.

You ask whether that would be reflected in any way in the securities of the Natural Gas Pipeline Company of America, in my judgment, if its securities were on the general market. Well, I don't know just exactly how I would translate that particular opinion to the Natural Gas Pipeline Company of America. The Natural Gas Pipeline Company of America is, in the last analysis, dependent on these companies. It is dependent on their sales. Its whole future is dependent on the sales of these utility companies in this area. If the trends are unhealthy, and if gas is not going to hold its own in competition with other fuels, and if the trends are going to decline, continue to decline, and the domestic consumption is going to continue to decline, I think it naturally will be reflected in the investor's valuation of the Pipeline Company which serves this territory.

It is bound to be that way.

1798 (At this point counsel for defendants handed to the reporter a document headed "Residential Electric Service in U. S.", with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 203.

Exhibit 202 was offered in evidence, and the Examiner took his ruling under advisement.)

Exhibit 203 was prepared under my direction. The exhibit shows statistics with reference to residential electric service in the United States. The source of the information was the Edison Electric Institute Statistical Bulletin No. 6 for the year 1938. The Edison Electric Institute, I suppose, would be classified as a trade association of the electric industry, and it has for many years compiled and released statistics on the industry. These figures are generally accepted by investors and other people as the best available information on the subject.

This exhibit shows for a ten-year period the number of customers taking electric service in the United States. It showns an increase from 19,569,606 in 1929 to 22,110,403 in 1938.

During that period the average annual use per customer in kilowatt hours increased from 499 kilowatt hours in 1929 to 845 kilowatt hours in 1938.

The average annual bill during this period increased from $31.44 in 1929 to $35.57 in 1938.

The last two columns on the right-hand side show the per customer information. I think possibly the heading should have "per customer" on there to make it perfectly clear. The figures certainly are on a per customer basis. From the average annual use in kilowatt hours and the average annual bill, it will be possible to compute the average annual rate.

Recross Examination Interposed by Mr. Slaff.

You ask why I did not do that. This exhibit was prepared to show in somewhat similar fashion to the way it was shown in former Exhibits, the consumption per customer in the domestic or residential field, and the amount of money received by the utility company for that use.

If I set up this exhibit on a comparable basis to show the average annual revenue per kilowatt hour, I would have to use six different headings. We have in Exhibit 202 six different sets of statistics with reference to domestic customers. I only used three in Exhibit 203. In order to make it completely comparable, I would have to use six. That could be done. It is all contained in that Statistical Bulletin No 6 of the Edison Electric Institute.

You suggest that the annual revenue per kilowatt hour of domestic consumption in 1929 is approximately 6.4 cents, and in 1938 approximately 4.2 cents. That sounds about right. There has been, I think, in the electric industry throughout the country an increase in consumption per year practically every year; a decline in the average rate in that classification, very nearly in every year since 1929; and the combination of those two has resulted in an increased annual bill per customer in practically every
1799 year during that period. There has been an increased consumption as shown in Exhibit 203. This has been accompanied by a declining rate and an increased bill. I

think rate policies have something to do with consumption in the electric field. I think that is obvious. The average American residential customer has available to him today many, many different types of appliances for the use of electric energy; and in this period under consideration there have been many rate reductions, and the customers have continued to use more and more energy and they have paid a bigger bill.

Redirect Examination by Mr. Hedrick Resumed.

This is very largely due to the new type of equipment that the electric industry has furnished to its customers to use; the fact that we have a great development of appliances in the electric field. There are countless ways of using electric energy that appeal to customers. We haven't as many ways to use gas.

Recross Examination Interposed by Mr. Slaff.

Yes, in this respect what is shown on Exhibit 203 lends encouragement to investors in electric securities. That is very definitely so. I think that is one of the things investors look at and get a great deal of encouragement to go into the electric industry. I think that is what they are interested in, an industry which shows not only an increased use, but at the same time a few more dollars per customer.

You ask if a portion of these reductions in rates and increase in use in the electric industry is due to the pressure of regulation and rate reduction ordered by commissions against which companies have from time to time fought. I think certainly there are some of those factors in there. Of course, during this period there have been many voluntary rate reductions, and there have been rate reductions where rate litigation has been the result. I think it is true that even where there has not been rate litigation, the pressure of possible rate reduction by the commissions is also a factor which has brought it down. I think this is reflected in part by these reductions.

Questions by the Examiner.

The calculations made by Mr. Slaff were derived from the second and third column of statistics. They should result the same from the other figures. It is just a matter

of dividing $31.44 by 499 to get the average rate in 1929, or dividing $35.57 by 845 to get the average rate in the latest year, 1938.

Redirect Examination by Mr. Hedrick Resumed.

(EXHIBIT 203 was offered in evidence. No objection was made by the Examiner to his ruling taking it under advisement because this exhibit is associated with Exhibit 202. Counsel for defendants handed the reporter a document headed "Commonwealth Edison Company", with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 204.)

Exhibit 204 was prepared under my supervision and direction. This exhibit shows certain statistics on 1800 customers, consumption, revenue and rates for the Commonwealth Edison Company, the electric company which serves the general territory served by the three Chicago utilities that procure gas from the Natural Gas Pipeline Company of America.

The figures were obtained from Institutional Utility Service; and were the figures furnished by the company to that service agency in my opinion. It will be noted that the only complete comparable figures are from 1930 to 1938, during which time the number of customers have increased. Consumption has increased from 1930, from 537,000,000 to over 721,000,000 in the domestic field.

During that same time the revenues increased from $24,754,000 to $27,948,000.

Consumption in kilowatt hours per domestic customer increased from 468 to 863; revenue from $25.50 to $33.42, and the rate per kilowatt hour declined from 5.45 cents per kilowatt hour to 3.87 cents per kilowatt hour.

In my opinion this indicates a healthy trend, and is one of the reasons why Commonwealth Edison Company is today regarded by investors as one of the outstanding electric utility companies in the United States.

It is one of the reasons why it was able to sell 40 year bonds at approximately a 3.16 basis. It is the only utility company during that great period of refunding which has been able to sell 40-year bonds.

You ask if Commonwealth Edison is a riskier business than the gas industry or the business of defendants. I think the defendants are much riskier propositions from

the investor's point of view than is the Commonwealth Edison Company; and I think by and large investors all over feel the same way. In my opinion the electric industry is a less risky industry than that of the natural gas pipeline transmission industry, in general.

Questions by the Examiner.

I am referring to the electric distribution companies. As a matter of fact, Mr. Examiner, in the electric industry most of the companies engaged in that industry have an integrated system. The great preponderance of the industry has integrated operations. There are not many power supply companies left.

In my answer to Mr. Hedrick's question, I was comparing an integrated electric industry against the natural gas pipeline idustry.

(Defendants offered Exhibit 204 in evidence. There was no objection but the Examiner withheld his ruling after the noon hour. On resuming the hearing after the noon hour, the Examiner announced that EXHIBITS 202, 203 and 204 were received in evidence.)

Redirect Examination by Mr. Hedrick Resumed.

1801 Commencing on page 6480 and continuing on through page 6493, I was cross-examined with reference to the relationship between defendants and Chicago District Pipeline Company, and the three Chicago utilities. I was asked if I investigated the assets of the Chicago District Pipeline Company in my investigation. I answered that I had not; that the latter company was unimportant to me. The real strength of the guarantee comes from the companies that are actually selling and distributing gas; namely, the three Chicago area utilities.

You ask what in determining the rate of return to which I testified I considered to be the relationship that existed between the companies mentioned and with reference to the guarantee of the contract of July 25, 1931, by the three Chicago distributing companies. Well, Chicago District Pipeline Company is the company which is wholly owned by the three companies that distribute the gas in this area. I think in my original concept of the problem, I looked through the corporate fiction and felt as though from a

financial point of view, at least, of course the fact was as though the gas was purchased direct by the three Chicago utility companies, the Peoples Gas Light and Coke Company, the Public Service Company of Northern Illinois, and the Western United Gas and Electric Company.

From a financial point of view, looking at the contract and the guarantee which exists one could consider the Chicago District Pipeline Company somewhat the same as a buying agent, a separate corporate buying agent for those three companies, namely, the Peoples Gas Light and Coke Company, the Public Service Company of Northern Illinois, and the Western United.

On pages 6532 and 6533, I was cross-examined by Mr. Booth concerning the fact that defendants do not control their markets. In response to questions I testified in substance that defendants have some possibilities of control of the sales of boiler fuel and industrial gas, which is not a large proportion of the revenue, but in respect to the gas sold under firm contracts it has no such control. I added that I did not say that defendants are handicapped today, but that the result of my investigation showed that they might be. I continued that I was not positive that it was handicapped, but I said that it might be handicapped in the future.

You asked what I meant in my testimony in that connection by the terms "no such control" and "handicapped". Well, as I read that line 10 over, particularly in connection with that whole sentence extending from line 7 to line 10, I think that there is an implication in the use of the words "has no such control" that I should explain.

There is almost the implication there that I felt that it had control with reference to boiler fuel and industrial gas. That was not what I wished to convey.

What I really did wish to convey was that as I know the facts, the Peples Gas Light and Coke Company, for example, which markets a great deal of gas, in casting around for new sales of gas, to try to obtain new customers to use gas, might approach a single industry or might make a study of an industry or an individual plant, and try to convince that plant or that segment of industry that gas was a fuel that could be used economically at rates at which it could be sold.

It might then contact or get in touch with the Natural Gas Pipeline Company of America, and across the table with

that company discuss the possibility of selling a
1802 boiler fuel or interruptible gas to that particular company or to that particular industry, and Natural Gas Pipeline Company of America, under those circumstances, is in a position to say whether or not it has gas available, and whether or not the gas should be sold at that price. To that extent I might say that the veto power exists in Natural Gas Pipeline Company of America.

That, however, is not the same as having the power of initiation or going out to try to attract a particular type of business. That is wholly in the hands of the Peoples Gas Light and Coke Company, using that just as one of the companies which are the buying companies.

Natural Gas Pipeline Company of America does not have direct contact with the ultimate consumer, and therefore, in my opinion, is not in a position to control the marketing policies of the gas which is sold in this area. That is one of the hazards which I referred to originally in my direct testimony and discussed again on cross-examination, the absence of control of the market or the marketing policy.

I understand that people from the Natural Gas Pipeline Company of America have urged the sale of gas for particular purposes, but that power to urge the sale does not give to Natural Gas Pipeline Company the power to direct the sales or have control over marketing policies to be followed in the selling of gas in this area.

At page 6587 I testified in response to questions by Mr. Slan that I did not consider it of great importance in coming to my conclusion as to the rate of return that the coal industry had approved generally the tentative recommendations of the experts of the Bituminous Coal Division of the Department of Interior. Then I stated that I would consider it of some importance.

You ask if I had not made a distinction between the use of the words "great importance" and "any importance" in connection with that testimony.

Well, I think there is some considerable difference between the two. I started to say "everything that—". I think if I were going to complete that statement I would say that everything that had any bearing whatever on the Chicago utilities or particularly on the Natural Gas Pipeline Company of America, with reference to this subject of the sale of gas, is of some importance, and probably is entitled to some weight, even though very minute. I felt with re-

spect to the recommendations of the experts of the Bituminous Coal Division of the Department of the Interior that that was not of sufficient importance to me in forming this opinion as to the rate of return in this case to cause me to make any special investigation or study in Washington with reference to what their recommendations were.

I have a correction on page 6597 of the record. Lines 3 and 4, the first sentence, say "I do not think it is based upon the hazards." I am not sure whether I said it that way, but if I did I certainly did not mean it that way. The sentence should read "I do think it is based upon the hazards." I think it would be obvious from reading that line of testimony and the rest of that answer and the other answers there that that is what I did mean.

1803 At pages 7324 and 7325 of the record, the Examiner made the statement with particular reference to pages 3, 4 and 5, of my Exhibit 150, that there was some indication that the witness had selected only the higher yielding issues, and his reason was that the result would not be substantially different, but that the exhibit would be extended. Following that statement I added that in view of the questions which were raised I would like to revise it to include all issues. I have prepared a revision of pages 3, 4 and 5 of Exhibit No. 150 to show additional security issues.

(At this point counsel for defendants handed the reporter a document entitled "All Mortgage Bonds of Domestic Electric and Gas Utility Companies Traded on New York Curb September 15, 1939," with the request that it be marked for identification. At the direction of the Examiner the document was marked Exhibit 205.)

This revision is shown in Exhibit 205. The original pages 3 and 4 of Exhibit 150 showed only one issue of bonds for each company. These sheets in Exhibit 205 show all the bonds of each of the companies listed on pages 3 and 4 of Exhibit 150 which were traded on September 15, 1939.

For example, it will be noted with reference to the Alabama Power Company, the original sheet showed only one issue of 5s of 1968. The revised sheets, Exhibit 205, show four issues traded that day, an issue of 5s of 1946, 5s of 1951, 5s of 1968, and 4½s of 1967.

Similarly for certain other companies which were included in the original pages 3 and 4 of Exhibit 150, additional issues traded on September 15th are shown in the revised sheets. On the original page 4 an average, straight

arithmetic average, of 5.12 percent was shown. On the revised basis, and in exactly the same way, the average is 5.15 percent.

(EXHIBIT 205 was offered in evidence.)

Questions by the Examiner.

That is the arithmetic average shown on page 2 of Exhibit 205. My original page 4 of Exhibit 150 showed only one issue of one company, largely for the purpose of showing an issue for each company that I had on that date, but not bothering to show all the issues for each company.

You ask what formula I adopted to choose one issue there and eliminate the othe rthree. I think I selected issues wit hthe highest coupon, which had the longest maturity. That, I think, was my general rule, in preparing this exhibit. I would like to check that with one or two more (examining papers). I think that is right. I selected the highest coupons and the longest maturity.

Recross Examination Interposed by Mr. Slaff.

In the case of Interstate Power Service, the highest coupon was a five of 1956. There I selected the one with the highest coupon. I think generally I should say it this way: I selected first of all the highest coupon, and then, when there were several bonds bearing that same coupon, of those bonds I selected the longest maturity.

1804 *Questions by the Examiner.*

No, I should not have weighted that coupon rate and maturity in order to put my average yield in a corresponding light. I do no consider the averaging of any importance. As a matter of fact, in view of all of the questions that were raised about averages, and weighted averages, weighted by amounts, if I were preparing this exhibit again I would certainly never strike any average. When I first prepared this exhibit I was interested in what it would show; and in my working papers in my office I took a line and divided by the number. We have had a lot of debate in this record as to whether the straight average, straight arithmetic average or the weighted average is the proper one to use. Nobody can

decide that with any degree of finality. It is a matter of taste.

When I say the longest maturity, I mean the longest maturity from the present date. I don't mean the longest absolute maturity, but the longest maturity from the present time.

You ask how I came to use the heading on page 3 of Exhibit 150, "All Mortgage Bonds"; that is, whether I started out with the idea of using all mortgage bonds and then determined I would only use selections. Well, I definitely decided that I would confine it to the electric and gas fields. I don't think that I am answering your question directly, I think I probably had in mind when I started this thing to include all issues. Somewhere in the statistical process another man was working on this from the mechanical point of view, and we discussed it, and decided to only show one issue of each company. To that extent the heading is wrong.

As a matter of fact, my original notes which I discussed in connection with this exhibit two or three days before the testimony was given had a note, "only one issue of any company is included, that being the highest coupon and the longest maturity." Somewhere in the process that thing got left off, and caused me all kinds of trouble here on cross-examination. I was accused of bringing in misleading information.

Redirect Examination by Mr. Hedrick, Resumed.

(EXHIBIT 205 was received in evidence without objection. At this point counsel for defendants handed the reporter a document entitled "All Preferred Stocks for Domestic Electric and Gas Operating Utilities Paying Full Dividends Listed N. Y. Curb (September 15, 1939, Prices)," with the request that it be marked for identification. At the direction of the Examiner, the document was marked 206.)

In connection with the Examiner's suggestion, I have prepared a list showing issues in addition to those shown on page 5 of Exhibit 150. This list is set out in Exhibit 206, which was prepared under my direction.

Exhibit 206 could be considered as a revision of page 5 in the original Exhibit 150, to include all issues of preferred stocks of domestic electric and gas operating util-

ities paying full dividends. The original page 5 of Exhibit 150 showed only one issue of preferred stock of each company; that is, the preferred stock bearing the highest dividend rate.

For example, in the case of Alabama Power Company, the original page 5 of Exhibit 150 shows only one issue, the $7 preferred stock, yielding 7.2 percent. The revised sheets, Exhibit 206, show both the $7 dividend rate preferred stock and the $6 rate preferred stock of that company, selling at 86, or an approximate yield of 7.0.

1805 My original sheet, page 5, did not show the average yield on these preferred stocks, but I have read into the record the fact that I had made the computation, although it was not marked on the exhibit; and that showed that the average yield of those stocks listed there on page 5 of Exhibit 150 was 6.29 percent. I have not in Exhibit 206 showed the average yield of the preferred stocks, although I have made the calculation, and it is approximately 6.21 percent.

Questions by the Examiner.

The original figure on page 5, Exhibit 150, was 6.29. It was not marked on the exhibit, but it was read in the record at that figure.

You state that you have a notation of 6.4. I am not sure about that. I do remember at that hearing I read something in, and then we ran it up on an adding machine. I have marked here on my original copy that I have 6.29. Possibly 6.4 was read into the record, and that was an error. Actually, the original sheet of page 5 of Exhibit 150, if the straight arithmetic average is taken of those yields there listed, would show 6.29 percent.

You ask what theory justifies taking the highest dividend rate in the case of these stocks and the highest coupon rate in the case of the bonds. The procedure would be analogous. This whole exhibit was set up on the basis of showing opportunities to investors.

Now, if you and I were considering buying a preferred stock—let us go down here and take the Jersey Central Power; assuming we were interested in that company. The 6 percent stock shows a yield of 6.5. The 5½ percent preferred stock on the quotation shown here, shows a yield of 6.3. Which would you buy? I think the investor

would buy the one today showing the highest yield; although here are markets, actual markets that exist, and people are buying and selling at these prices. Some people apparently are willing to buy the lower yield because the price appreciation factor is in there, since the spread between today's price and the call price is greater; so they are buying; and the best you can say is that they are buying, looking both ways at the same time. They are buying, looking at the yield and looking at the possibilities of price appreciation. An investor who is buying for yield alone, however, it is obvious that he would buy the one with the higher yield if it were selling below the call price.

I purposely selected them in that case, where they were selling well below the call price. No, I don't show the call prices for any of these bonds. In the original record, in the cross-examination, there was read into the record all cases where the securities were selling at or above their call prices, if I remember correctly. That was on page 1 in connection with the Natural Gas Company bonds, and in the cases of pages 3, 4 and 5 of Exhibit 150. Mr. Slaff asked me to indicate whether or not they were selling at or above their call prices. I note that my exhibit here shows the call prices in all cases, because during one of the recesses down there I went through the manual and determined the call prices in order to place myself in position to be able to answer any questions with respect to whether or not they were selling at or above call prices.

Redirect Examination by Mr. Hedrick Resumed.

1806 On pages 7309 and 7346 I testified as to the various companies shown on pages 3 and 4 of Exhibit 150, showing instances where the call prices were lower than the amount the bond was selling for, and in that connection, in response to questioning, I answered with respect to a number of those cases.

(EXHIBIT 206 was offered and received in evidence, without objection.)

Beginning with line 3, on page 7330, I testified in response to a question by the Examiner, in substance, that the New York Stock Exchange requirements are more difficult from the standpoint of information to be fur-

nished than are the requirements of the New York Curb Exchange; and added that it is more expensive for companies to list securities on the New York Stock Exchange than it is with the Curb Exchange. I then added that a great many smaller utility companies never list their securities on the Curb Exchange.

The Examiner asked me if I did not mean the Stock Exchange and I responded Curb Exchange, in connection with my last statement. I think I must have been shell-shocked, because I did not even answer correctly when the Examiner asked me about it. The line 12 should read, "• • • Companies never list securities on the Stock Exchange."

On pages 7376 and 7377, in connection with one of my answers, the record shows I used the expression "They were the ones that we used in the telephone study in exactly the same kind of chart." I think it is a typographical error there. The sentence should read, "They were the ones that were used in the telephone study in exactly the same kind of chart."

On page 6570, line 20 to line 22, in the sentence "Well, a substantial part of their revenue is from sales of an industrial character where the profit margin is probably less per thousand feet than it is for sales under the current contract," the last term "current contract" should read "firm contract."

On pages 7377 and 7378, I testified that in order to get my average earnings price ratio for these twelve companies, we were then considering, I added the twelve earnings price ratios and divided by twelve.

I was asked by Mr. Slaff if I had added the twelve price earnings ratios rather than the twelve earnings price ratios, divided the total by twelve, and taken the reciprocal of the average, would I not have obtained a different percentage. My answer was that the price earnings ratio of any particular company at any particular time is the reciprocal of the earnings price ratio, but that I didn't know about any mathematical acrobatics.

Several other questions were asked in the same connection and at the end of this line of questions I stated to Mr. Slaff that I would talk to him later so that I will clearly know what he had in mind. Mr. Slaff has never talked to me nor I to him about it. I have never made any such calculation because any such calculation is not

any check in any way as to the validity of my statistical method. That question is really, getting down to mathematics, asking the question: "Does the arithmetic mean of the series equal the harmonic mean of the series?"
1807 It never does except in an accidental way. There is not any possible check as to the statistical validity of my method. Taking the reciprocal of my earnings price ratios is a very simple matter. I have the earnings price ratios for twelve stocks, and I put them down and add them up and divide them by twelve; but that will not work out the same, except in an accidental way, with calculations made this other way—the price earnings ratios added together, divided by twelve, and then calculating the reciprocal of that. There is no possible check as to the statistical validity of my process by doing it the other way.

Recross Examination Interposed by Mr. Slaff.

I satisfied myself with respect to the mathematic acrobatics since that time. I think I was probably punch drunk at that time after six days of cross-examination. I should have been able to make a calculation by setting down a simple example that would show that it is only in the accidental case those things would ever check. I don't think Mr. Smith took the same average of price earnings as a check. I am pretty sure he didn't check the validity of his statistical method in that manner because he would not have gotten any check.

Redirect Examination by Mr. Hedrick Resumed.

While Mr. Ostrander was on the witness stand on December 4th certain excerpts from prospectuses of the following gas and utility companies were read into the record during cross-examination at the request of counsel for the Company; on page 9084 the Arkansas-Louisiana Gas Company; 9089, Panhandle Eastern Pipe Line; 9142, Public Service Company of Colorado; 9154, Central Illinois Public Service; 9158, Central Power and Light Company; 9162, Kansas Power Company; 9164, Idaho Power Company; 9166, Missouri Power and Light Company; 9168, Public Service Company of Oklahoma; and 9169, West Texas Utilities Company. I have read

the record in that respect and the excerpts that were taken from the prospectuses mentioned.

Yes, I know generally why such provisions are placed in bond indentures of utility companies in recent years. I know generally and I also know specifically with respect to some companies, because I actually sat in while the mortgage was being drafted and insisted those provisions be put in. The reasons are that investors who are buying the bonds of a company which is issuing bonds under an open-end mortgage, and under which the company can put out additional bonds by satisfying the covenants of the mortgage with respect to either property or earnings, are very careful with respect to the kind of property which is made the basis for the issuance of additional bonds. Gas transmission property, compressor stations, distribution systems, power plants and sub-stations are something that are tangible and real. Gas production property, such as leases, leaseholds, owned acreage, or in some places gathering lines, are in the opinion of investors less tangible and real, because a gas field or a gas lease which is worth something today might not be worth anything tomorrow.

From that standpoint the investors, in the mortgages particularly which have been drafted in recent years, from 1935 on, have, generally speaking, required a clause which is generally put in in the place where bondable property is defined, excluding from bondable property production property, and by production property I mean gas leases, leaseholds, acreage owned, and in some places, gathering lines.

1808 In some cases it goes farther than that and does not allow the inclusion within the term "bondable property" of transmission lines except where the transmission lines join together or link together distribution systems.

In the Northern Natural Gas Company case, where I actively took part in drafting the mortgage, we required such a provision.

1809 I sat in as representative of one of the buyers in the actual drafting of all the language of the mortgage.

Schedule 6 of Exhibit 186, introduced through witness Smith, showed as to Northern Natural Gas Company First Mortgage 3¼ per cent A's 1954 offered in August, 1939, in amount $16,000,000, that the yield was 3.25 per cent. At your request, I have made a calculation as to the his-

torical cost of that debt money to Northern Natural Gas Company. I obtained from the SEC photostat of certain portions of the declaration filed by that company in connection with that refunding.

Recross Examination by Mr. Slaff.

It was not a certified copy. I ordered, as I ordinarily do. We have a standing account with the SEC. I order the photostats and they send me a bill. I could rely on its being a true copy of what is contained in the declaration. I could not rely on the declaration wholly because I had to get in touch with the company to get the actual figures because there were certain estimates in the declaration.

Redirect Examination by Mr. Hedrick Resumed.

Then, after obtaining certain information, I made a calculation and attempted to find out what the historical cost of this debt money was. It must be remembered this $16,000,000 issue which came out in 1939 replaced an issue of 4¾ and 4¼ bonds and 4½ per cent debentures on which there were substantial call premiums when they were called and replaced. Said call premiums amounted to a total of $682,955, the duplicate interest was $58,149, the unamortized debt discount and expense on the old issue was $159,646, the other expenses of refinancing amounted to $190,437, or total expenses and premiums and discounts in connection with the refunding of $1,091,187, which spread over a $16,000,000 issue amounts to 6.82 per cent of the principal amount. The average weighted term of the new bonds which had an actual maturity in 1954 is 12.05 years.

Questions by the Examiner.

The weighted average term of the new bonds which have a maturity in 1954 is 12.05 years or say 12 years. That was because of the sinking fund provisions. The yield on a bond which was sold at 93.18, which is 100 less the 6.82 previously mentioned, for a 12-year term is 3.97 per cent. That is obtained from the yield tables. It is just a mechanical job determining it from those tables, and that is what the historical cost of that debt money is in contradistinction to the coupon rate which the present security bears. That

is the historical cost net to the company. The historical cost to the company includes all premiums on the old bonds and the discount, the expenses in connection with the issue, the duplicate interest, and things like that. This is a little different from the computation counsel asked Mr. Smith to make from data contained in Moody's. This kind of computation could only be made by finding out just exactly what were the premiums, expenses, and discount which the company suffered, and that is the only way you can get the difference between the yield to investors and the yield to the company.

Redirect Examination by Mr. Hedrick Resumed.

(At this point, counsel for defendants produced a document entitled "Gross Operating Revenue and Net Available for Fixed Charges After Depreciation of the Gas Departments of the Three Utilities Distributing Gas in the Chicago Area, Witness W. C. Gilman," with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 207 for identification.)

Exhibit 207 was prepared under my direction. This is the financial information which I told the Examiner previously that we had taken from the annual reports by the companies to the Illinois Commerce Commission. It
1810 shows for Peoples Gas Light and Coke Company, Public Service Company of Northern Illinois, and Western United Gas and Electric Company certain figures as to gross operating revenue and net available for fixed charges for the period 1929 to 1938. The notes should be read in connection with any examination of the figures.

These figures are set up for Peoples Gas Light and Coke Company and Public Service Company of Northern Illinois on the basis of assuming the average gross operating revenue and net available for fixed charges over the period 1929 to 1931, inclusive, as 100 per cent, and showing during the period covered the variations from that.

It will be noted then for Peoples Company starting with 100 per cent as the average for 1929, 1930 and 1931, in gross, that the gross for 1938, excluding the rate increase, is at 98.6 per cent. The net, assuming 1929, 1930 and 1931, as 100 per cent, has declined in 1938, excluding the rate increase, to 40.8 per cent of that amount.

Similarly for Public Service Company of Northern Illinois, the 1938 gross has increased to 116.5 per cent of the average of the gross in 1929, 1930 and 1931. The net, however, has in 1938 declined to 65.5 per cent of the average of 1929, 1930 and 1931.

For Western United Gas and Electric Company, from the Illinois Commerce Commission's reports, it was impossible to obtain comparable figures for the years 1930, 1931, and 1929, as stated in Note 3. Therefore, I used the figures from 1932 to 1938 and assumed the gross operating revenue and net available for fixed charges in 1932 as 100 per cent and show how the gross and the net available for fixed charges have been moved in the period 1932 to 1938. The gross has been increased from 100 to 110.3. The net available for fixed charges has declined from 100 to 71.6.

It should be noted that in the case of Public Service Company of Northern Illinois and Western United Gas and Electric Company, the figures are for the gas departments of those companies. I say that because the companies, in addition to their gas business, also have electric business.

(Defendants offered EXHIBIT 207 in evidence.)

Recross Examination by Mr. Booth.

The source of this data is the annual reports made by the companies to the Illinois Commerce Commission. Those reports were eventually made available to me or to employees of defendants. You ask if I can tell you what the total cost to Peoples Gas Light and Coke Company of producing and purchasing gas for the year 1930 was. I think I could if I had the report for that year before me; but I haven't it before me now, and I do not remember it.

(EXHIBIT 207 was admitted in evidence without objection.)

Counsel for defendants then produced a document entitled "Gas, Electric and Telephone Utility Companies Serving the City of Chicago" and requested that it be marked for identification. At the direction of Examiner, the document was marked Exhibit No. 208.)

1811 *Redirect Examination by Mr. Hedrick Resumed.*

I prepared Exhibit 208 in connection with Schedule 24 of Exhibit 185 for the purpose of showing additional information to that shown on Schedule 24. Schedule 24 in Exhibit

185 shows with respect to the gas, electric and telephone utility companies serving the City of Chicago gross operating revenue for the period 1929 to 1938, and taking the average of 1929, 1930 and 1931 as 100 shows the per cent relation for each of the companies of the gross in each of the succeeding years. Exhibit 208 is set up on a similar basis. It shows the net available for fixed charges after depreciation.

Schedule No. 24 showed that taking the average revenue of 1929, 1930 and 1931, as 100 per cent, that the gross of the People's Gas Light and Coke Company in 1938 was 106.8. That includes the rate increase. This Exhibit 208 shows that the net, taking the average of 1929, 1930 and 1931 as 100 per cent, has declined in 1938 to 51.1 per cent of the 1929, 1930 and 1931 average, excluding the rate increase.

Similarly, the figures are shown as to the movement of the net available for fixed charges of Commonwealth Edison Company and Illinois Bell Telephone Company.

The essential difference between Schedule 24 and Exhibit 208 is that Schedule 24 shows the gross and Exhibit 208 shows the net available for fixed charges.

The source of the data is shown at the bottom of the exhibit and is Moody's Public Utilities Manual, 1934, 1937 and 1939 editions. In that connection, it should be noted that since the source is Moody's Public Utilities Manual, the figures shown in here are as reported by Moody's. In the case of Commonwealth Edison Company, as was originally brought out by Mr. Booth, it shows in 1938 the inclusion for the first time of the consolidation with Super Power Company of Illinois. The company last named is a generating plant down here in Pekin, Illinois, which is a large power supplier for this area. It was originally owned by a number of utility companies in this area. The various interests were purchased by the Commonwealth Edison Company until, as I understand it, they acquired all of the stock and as of December 31, 1938 it was merged with the Commonwealth Edison Company. It was an electric generating company and in addition to that I think it owned some transmission facilities between Chicago and Pekin or Peoria, Illinois.

(EXHIBIT 208 was offered in evidence.)

Recross Examination by Mr. Booth.

I believe that the order reducing the rates of the Illinois Bell Telephone Company was handed down in the year 1938. I am not familiar with the decision handed down by the Supreme Court of the United States. During 1938, as I remember it, there was a rate reduction ordered by the Illinois Commerce Commission and during that year also certain refunds were made to customers. Perhaps I am wrong about that and I will accept your statement on that point. I was under the impression that there were some refunds made in 1938. I do not recall the circumstances that in 1938 the Illinois Commerce Commission entered an order reducing the rates of the Illinois Bell Telephone Company and that that company accepted the reduction.

There was not anything in Schedule 24 of Exhibit 1812 185 under the heading "Illinois Bell Telephone Company" with reference to the matter you have been discussing in these questions. These figures are the figures reported to Moody's Manual. I will accept them as correct. They are the net available for fixed charges. I am pretty confident that Illinois Bell Telephone would not report net available for fixed charges unless it really was net. I attempted to verify whether or not the 1938 figures which showed a sharp decline were in part affected by the reduction ordered by the commission during that year. I noted that reduction myself. It was substantial, some $2,300,000 with the gross remaining about the same. I looked at the break-down of expense in an attempt to locate just exactly what took place; and I found some substantial increases in commercial expense and one or two other items, but I could not put my finger on anything which satisfied me as to why this had taken place, and I did not have time to pursue any further. It is entirely possible that they made some rate increases too in that year.

(EXHIBIT 208 was received in evidence without objection.)

Counsel for defendants then handed the reporter a document entitled "Bonds, Debentures and Notes, Preferred and Common Stocks of Natural Gas Companies, Holdings by Public," with the request that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 209.)

Redirect Examination by Mr. Hedrick Resumed.

Exhibit 209 was prepared under my supervision and direction. It is set up fundamentally on the same basis as Schedule No. 5-A of Exhibit 186. It shows the same companies and it shows in addtion some information which I considered pertinent in an appraisal of the information which is implied by Schedule No. 5-A.

Exhibit 209, for example, shows the latest earnings available and the latest times bond interest and fixed charges earned instead of fixed charge coverage only in 1938. We find the yield to the maturities of these bonds as of September 20, 1939 prices. It is proper under those circumstances, to use the latest published earnings. I used the latest published earnings in Exhibit 209, and those earnings were taken from regular published service sources, Ithink, in all cases, either from Moody's Public Utilities Manual or the Public Utility Supplement. In addition to that there is a break-down which can be best illustrated by an example.

For Houston Gulf Gas Company, there is shown on Schedule No. 5-A, Exhibit 186, two issues,—mortgage bonds and debentures. It shows the times fixed charges earned in 1938 for not only the first and collateral sixes of 1943, the debentures of 6½s of 1943, but also a substantial issue of income notes. The total fixed charge coverage in 1938 is reported to be 1.30 in Schedule 5-A.

Exhibit 209 shows that the times mortgage bond interest earned during the latest available earnings period was 3.03 times, shown as the top figure in the "times earned" column. That the times interest earned on the first and collateral sixes of 1943 and the convertible debentures of 1943, lumped together is 2.06. Similarly, there is shown in Exhibit 209 the ratio of mortgage debt to fixed capital, whereas in Schedule No. 5-A of Exhibit 186 there is only shown the relation of total debt to fixed capital as of December 31, 1938.

For example, for the Houston Gulf Gas Company,
1813 Exhibit 209 shows that the ratio of mortgage debt to fixed capital is 33.38 per cent, whereas Schedule 5-A shows the ratio of funded debt to fixed capital at 43.80. Somewhat similarly for the other companies additional calculations have been shown here which enable one to tell from Exhibit 209 the times mortgage bond interest was earned in distinction to times fixed charges earned and the ratio

of mortgage debt to the total fixed capital instead of the ratio of the total funded debt to the fixed capital.

In addition there have been some sub-totals drawn off and separate figures shown which are finally included in the grand total for companies which are primarily gas distributing companies, such as Southern California Gas Company and Southern Counties Gas Company, which companies are companies with very large distribution facilities, but which happen to have a gas transmission line extending from the distribution areas which they serve into the gas field and through which gas is transported to their properties.

The over-all figures are not greatly different insofar as approximate yield to maturity on the bonds is concerned. There is shown on Exhibit 209 for the companies which we classify as having pipeline operations or as pipeline companies, a yield of 4.06. The yield for the companies which are primarily distribution companies is 3.99. The grand total yield weighted by total amounts outstanding is 4.00 per cent compared to 4.02 per cent as shown in Schedule 5-A of Exhibit 186.

The page entitled, "Preferred stocks of natural gas companies," is basically similar to Schedule No. 5-D of Exhibit 186. I have divided that into a sub-total with the Southern California Gas Company set out by itself. That company, which is primarily a distribution company, has a large amount of preferred stock outstanding, and that preferred stock which sells on a relatively low yield basis, tends to bring down the yield to the 5.35 figure shown in Schedule No. 5-D of Exhibit 186. The preferred stock of Southern California Gas Company alone is nearly 70% of the total preferred stock shown on Schedule 5-D. Eliminating the Southern California Gas Company, we find an approximate yield of 6.08 in Exhibit 209 as against 5.35 in Schedule 5-D of Exhibit 186.

I think there is more information contained here in certain cases than there is in Schedule 5-D, but I think it is self-explanatory and must be read in connection with the notes at the bottom of the schedule.

The page, entitled, "Common Stocks of Natural Gas Companies," is set up on basically the same form as Schedule No. 5-F, Exhibit No. 186. In all cases we have taken the latest earnings available. I believe it improper in calculating an earnings price ratio of any common stock to take anything except the latest published earnings.

After all, an earnings price ratio is the earnings per share of the stock divided by the price of the stock.

If we take the September 30, 1939 quotations as the price for our stock, we certainly should take the latest earnings that were reported to the public prior to that time. Stocks were selling in September, 1939, not so much on the basis of their earnings back in 1938, but what they were earning in 1939, and perhaps what they are going to earn later. Therefore, I think that it is statistically unsound to show or calculate earnings price ratios using prices as of September 30, 1939, and earnings in all cases back in 1938, as shown in Schedule No. 5-F. If the latest reported earnings which were available to anybody
1814 who could read Moody's Manual before September 30th are used, the 7.33 per cent figure would be changed.

Exhibit 209 sets the companies up in two schedules, excluding in the first sub-total Indian Territory Illuminating Oil Company and South Penn Oil Company, which are primarily oil companies, and, as testified to by Mr. Smith, are probably not indicative in any way of natural gas pipeline companies.

Excluding those two companies, and weighting the earnings price ratios at latest earnings, and weighting by market values, instead of using the amounts carried on the balance sheet—it would show an earnings price ratio of 10.45 per cent. I want it clearly understood that this weighting is upon the basis of market value. I think again it is unsound and improper to weight earnings price ratios by the way the amounts are carried on the balance sheet, inasmuch as it is a ratio which is derived from the market price of the stock. If they are to be weighted at all they should be weighted by market values.

(Defendants offered EXHIBIT 209 in evidence.)

Recross Examination by Mr. Slaff.

You ask where I get the pro forma figure with respect to the Oklahoma Natural Gas Company. I think it was taken from Moody's manual. Those bonds were issued in August, 1939, the bonds and the stock. There was a prospectus issued in connection with those securities; and the calculation which is shown on the first sheet here is set up on the basis of the new amounts of bonds outstand-

ing. There again, I think that Schedule 5-A was improper because it shows the fixed charge coverage, Oklahoma Natural Gas Company, 1.91 times, which was on a capitalization which had completely disappeared. This company refunded all of its debt in 1939. It had new securities outstanding. I think there is no relation whatever between the yield of those new bonds and the times fixed charges earned on a capitalization which has disappeared.

I am not sure that the pro forma earnings with respect to the preferred and common stock of Oklahoma Natural Gas Company also come from the same source. I will have to look at the note. (Examining papers.) This is note 7; for the 12 months ended August 31, 1939; so I would judge that would not be in the prospectus. It must be in Moody's current supplement. You ask where I got the pro forma earnings on the common. Those pro forma earnings are apparently the same as used on the second sheet for the twelve months ended August 31, 1939, and I should judge must have been taken from Moody's current supplement. The prospectus which came out in August would have earnings ending several months prior to the date of the prospectus. That would also apply to the pro forma earnings statement which was used in connection with the bonds referred to on page 1.

(EXHIBIT 209 was received in evidence without objection.)

Redirect Examination by Mr. Hedrick Resumed.

On page 8800 during the cross examination of Mr. Smith, he testified in substance that defendants' bonds would be 3.75 for 40 per cent total capitalization; the preferred stock 20 per cent, yield to the public of 5.75, which he stated was undoubtedly high but a fair figure, and the price earnings ratio of 8 per cent plus a 10 per cent cost of financing on the common stock. You ask if I have an opinion as to the amount in terms of percentage of 1815 common stock that would be required in setting up a securities structure for a natural gas pipeline transmission company, and a further opinion as to the percentage of price earnings ratio on such stock. Yes, I originally testified that I felt that the most appropriate capital structure for a company of this type was from 40 to 50 per cent in bonds and the balance in common stock. I testified that I did not think that preferred stock was

appropriate for a company of this kind. I believe that if it were financed through bonds, 40 to 50 per cent of the amount necessary, that it could raise that money on approximately a four per cent basis, the cost of money to the company; and the balance I believe should be common stock; and I believe that could be raised on the basis of cost of money to the company at not less than 12 per cent. That is about eight times earnings.

If 50 per cent is bonds at 4 per cent, and 50 per cent is in common stock at 12 per cent, that will result in an overall cost of money of 8 per cent. That I believe is proper, and is one of the factors that I took into consideration in arriving at my rate of return. As a matter of fact, I had a number of calculations during cross-examination in Washington, the working papers of which were turned over to counsel, which assumed different yields on bonds and different earning rates on stocks.

Obviously, I have an opinion as to whether or not the securities of a natural gas pipeline transmission company, such as defendants, could be sold on the basis as testified to by Mr. Smith on page 8800. If I thought they could be sold on the basis as he has set them up, I certainly wouldn't have testified that I consider 8 per cent a proper rate of return.

Recross Examination by Mr. Booth.

In both Exhibits 202 and 207 the first money column in each of them relates to the gross operating revenues of the Peoples Gas Light and Coke Company. In the second money column of Exhibit 207 is shown the net available for fixed charges for Peoples Gas Light & Coke Company for each of the years 1929 to 1938, inclusive. This second figure represents, of course, the net available for fixed charges after payment of all operating expenses and after depreciation. It is after production, maintenance, commercial, new business, and all other expenses in the cost of producing gas or the cost of purchasing gas. These figures were taken from the annual reports made by the company to the Illinois Commerce Commission. It is true that the principal item of expense of Peoples Gas Light & Coke Company would be either the cost of producing manufactured gas prior to the time of the introduction of natural gas and the cost of purchasing natural gas after

its introduction, plus the cost of producing such artificial gas as the company also produced.

You call my attention to the document you describe as the annual report of the Peoples Gas Light and Coke Company for the year ended December 31, 1930. That is the document from which the figures shown in Exhibit 207 for the year 1930 were obtained. Page G-5 of that exhibit contains the caption "Operating Expenses" and a sub-caption "Production Expenses." The production expenses include coal gas, water gas, and purchased gas. The total amount shown for 1930 for each item was: coal gas $1,977,567.54, water gas $3,004,244.27, purchased gas $5,494,168.16, a total of $10,475,979.97. I think 1930 was the last year in which the Peoples Gas Light & Coke Company supplied manufactured gas. In October, 1931 it began the supply of mixed manufactured and natural gas. The natural gas of course is purchased from defendants through the Chicago District Pipeline Company.

1816 You call my attention to another document described as the annual report of the Peoples Gas Light & Coke Company for the year ended December 31, 1938, to the Illinois Commerce Commission. That also is a document from which information used in compiling the figures in Exhibit 207 was obtained. On page 619 of that document appears the caption "Gas Operating Expenses" and a sub-caption "Total Production Expenses for the Peoples Gas Light & Coke Company." That includes cost of gas purchased, the total amount shown there for gas purchased in 1938 was $12,465,074.64, the total production expenses, which included that item, as shown in that report are listed in line 20 at $14,297,598.65. This report does not give the relative volume of artificial and natural gas at that particular point. It shows the amount elsewhere.

Mr. Hedrick: I have a matter I want to take up.

At page 5610 of the record Mr. Morgan offered the contracts on file with the Federal Power Commission of all the pipeline companies taking gas from the Panhandle field, namely, Colorado Interstate, Cities Service, Panhandle Eastern, Northern Natural, Lone Star and the Consolidated, and the Examiner advised Mr. Morgan these may be offered later. We at this time offer the schedules and contracts referred to in Paragraph Numbered A of Order 53 of the Federal Power Commission dated July 5,

1938, and the information requested in Paragraph D of that same order so far as the following companies are concerned, Colorado Interstate, Cities Service Gas Company, Panhandle Eastern Pipeline Company, Northern Natural Gas Company, Lone Star Gas Company and the Consolidated Gas Utilities Corporation.

The Trial Examiner: To be incorporated by reference?

Mr. Hedrick: To be incorporated by reference.

The Trial Examiner: Any objection?

Mr. Slaff: I have no way at this time of knowing whether what is offered is material or relevant or competent to this proceeding.

Mr. Booth: I want to object.

Mr. Slaff: I don't have them before me here. They are in the Commission's files. They are asked to be incorporated by reference. Certainly I can't at this time assume they are proper or improper for that matter.

Mr. Booth: I want to object to the introduction of these exhibits, these contracts. We are not trying the rates of these other companies in this case, as I understand it. It seems to me that opens up an entirely new field which places an unfair burden. There is no showing as to any relevancy, that these contracts are material at all to any of the issues in this proceeding, and we want to object very strenuously and before they are admitted we think counsel for the company ought to tell us what is in those contracts so that we can have an opportunity to object to them.

Mr. Slaff: We ought to have a statement now, I should think, at least as to the purpose for which they are being offered so we can examine the documents.

Mr. Hedrick: I will ask Mr. Culton to make that statement.

Mr. Culton: They are offered for any assistance they may give the Commission. The evidence shows that gas is being taken from the same field by each and every of these companies. The comparison is relative. The Examiner and the Commission can give those rates, those schedules such weight as it may seem proper. But there are plenty of authorities holding that they are proper for consideration in a matter of this character.

The Trial Examiner: Do you have a memorandum on that, Mr. Culton?

Mr. Culton: Yes, sir. I can give you plenty of cases tomorrow.

The Trial Examiner: I would like to have a short memorandum if it doesn't require any additional preparation on your part.

Mr. Culton: I can give you the cases tomorrow. They are based on all the rate cases. They are not conclusive, manifestly they could not be conclusive, but just for such weight as they may think that to have. One of the witnesses the other day said specifically it would be interesting to make those comparisons.

The Trial Examiner: Do you have copies of those schedules and contracts yourself?

Mr. Culton: We have portions of them, Mr. Examiner, and that is what I referred to a while ago. We may be able to have an analysis ready before we finish so as to put that analysis of those different contracts in evidence. We do not have copies of all of them. We have copies of some of them. We will be glad to submit them to the Examiner so they can see what they are. What they do is show the rate applicable, that is, the contract rate. Most of them give by such and such a number the volume of gas sold and the price. We do not have the contracts, but we have answers to the questionnaires.

The Trial Examiner: I think the Examiner ought to be a little further advised before he makes a ruling on this point.

Mr. Culton: We will be glad to submit to the Examiner the authorities on which we rely.

The Trial Examiner: And the general nature of the matter.

Mr. Culton: We will be glad to supply some of those that we do have. We have some photostats.

The Trial Examiner: If you have a copy of Order 53 I would like to see that.

Mr. Culton: Yes, sir.

Mr. Hedrick: May I loan it to you instead of giving it to you? It is my file copy. I can probably get more.

Mr. Culton: I will state, Mr. Examiner, the authorities which I shall submit consist of opinions by Justices Roberts and Brandeis, principally, on the value of comparison of rates. It is true you can never find them exactly the same. There are differences in distances in transportation. All those factors can be taken into consideration in determining the weight to be given. I recall a very recent case where they held where the freight rate in question on oil was from Mid-Continent Field to Mon-

tana, I believe it was, it was proper to show the rate on oil from the Mid-Continent Field to Idaho and the rate from Idaho to Montana was also proper.

I will be very glad to give you the authorities.

The Examiner has on his calendar an undecided motion by Mr. Hedrick, which appears at page 9736 of the transcript, for the incorporation by reference of schedules and contracts filed pursuant to the requirements of Paragraph A and Paragraph D of Order 53 of the Federal Power Commission, dated July 5, 1938, with respect to six companies, whose names appear on pages 9763 and 9768.

The Examiner was supplied by counsel for the companies with photostatic copies of material, indicating what was embraced under the offer; and also references to certain cases which counsel stated supported on the ground of relevancy the admissibility of the evidence offered.

The Examiner has considered the material and the cases referred to, and is of the opinion that the offer should be denied on the grounds that if the evidence were accepted an extended analysis of the wholesale rates of other gas pipeline companies would be required; which would mean extending the present rate case into a rate case involving as well the other six companies referred to in the offer.

The Examiner is aware of the fact that in the cases that counsel has referred to the Interstate Commerce Commission has used rate comparisons with regard to the fixing of rail rates for certain commodities. For instance, in the case cited in the 288 U. S., the commodity involved was petroleum shipped from the midcontinent fields. In the case cited in the 277 U. S., the commodity involved was rosin, referred to as a naval store. In those cases the court held in general that comparative rates could be used as one test, although not a controlling one, upon the question of reasonableness.

The Examiner feels that a fundamentally different legal problem is involved in this proceeding from that involved in the U. S. Supreme Court cases referred to.

Further, while the offer indicates that a comparison is to be made between the six companies, or any one of them, and the instant companies involved in this proceeding, on the basis of shipments of gas from the Panhandle; the Examiner is unable to determine from the offer that a comparison of the wholesale rates charged by the other six companies at their points of delivery with respect to gas transported from the Panhandle can be adopted as a

practical test of the reasonableness of the wholesale rates of the instant companies. In the absence of any such showing of relevancy in fact, that is, of comparability of bases of comparison, the Examiner rules that the offer be and is denied.

Mr. Culton: Will you note our exception to the ruling, Mr. Reporter?

Redirect Examination by Mr. Hedrick Resumed.

I just discovered an error in Exhibit 209 which I would like to correct. I have the recalculation made roughly here and it is in the last line of the last column on page 3 of that exhibit. The 10.14 per cent should read 8.20 per cent. The figure 10.45 further up the column is correct.
(December 13, 1939.)

Recross Examination by Mr. Slaff.

In my testimony yesterday shown at page 9670 of the record speaking of the Commonwealth Edison Company 40-year bonds, I said in substance that it is one of the reasons why it was able to sell 40-year bonds at approximately 3.16 basis. It is the only utility company during that great period of refunding which has been able to sell 40-year bonds. What I meant was that the company was the only utility during that refunding period which had sold 40-year bonds. I think too when I spoke generally like that, I meant in large amounts. There might be some isolated case of a small issue of bonds of some company which might be classed as a utility company or water company or telephone company that had sold a bond with a 40-year maturity; but I was speaking of a company which had been able during that period to sell a substantial amount of bonds with a 40-year maturity.

You ask if I am prepared to say that the other large substantial companies which have done substantial refunding in the past year were not able to sell 40-year bonds. They had not, but I think I could say this: that investors during this period of low coupon money have, to the extent that they are able, been putting pressure on to keep the maturities down. There have been a lot of 20-year maturities and 25-year maturities. Investors do not like to tie up their money for very long periods of time at low

interest rates, because another cycle may come along here and in five or ten years we may have high-grade mortgage bonds selling on a four and a half or five per cent basis. I do not know of a single case of a natural gas pipeline bond that has had a maturity longer than 20 years. There have been quite a number of 15-year maturities.

You ask if I have any judgment as to whether other large companies which have done refunding in the last five years or so would have been able to do so on a 40-year basis at substantially the same rates. Yes, I have a judgment. I don't think they could. You ask if they could not have financed on a 40-year basis at the rate at which they actually financed. I don't think so. I think if they had refunded with a typical company on a 3¼ per cent basis with 30-year bonds, they would have had to pay more for their money if they had had a 40-year bond. Yes, I think the Commonwealth Edison, had those bonds we were
1817 discussing been 30-year bonds, would have been able to secure them cheaper than at a 3.16 coupon rate.

Recross Examination by Mr. Booth.

You ask if I participated in the negotiations for refunding of the securities of all the large public utility corporations in the last few years. No, I have helped some companies in certain ways in connection with refunding programs. I mean my present firm has. No; I did not participate in the negotiations concerning the American Telephone and Telegraph Company and its subsidiary companies for the refunding of securities. I do not know what determined the policy of the management of those corporations and the banks or underwriters with respect to the term for which the bonds of those subsidiaries were issued. What I know about that is what I know about how investors think. The question as to what tie-up there is in the maturity and coupon rate is a matter that not only is decided upon by the management, but investors. What investors will take has a substantial influence on the policy of the management with reference to what they shall issue. I keep as closely as possible in touch with buyers of securities. The representatives of the large life insurance companies who buy utility securities are personal friends of mine and I see them in my business at least once a month, the buyers of all of the large life insurance companies. I

have no contact with the management of the American Telephone and Telegraph or its subsidiaries and do not directly know from them anything affecting the policy which they have followed in issuing securities.

Recross Examination by Mr. Slaff.

On page 9687, dealing with weighted averages and simple averages, I concluded by saying "Nobody can decide that with any degree of finality. It is a matter of taste." if it be assumed that there were 100 available issues and 99 of them were selling to yield 5 per cent and one of them was selling to yield 3 per cent, the arithmetical average would be substantially around 5 per cent as you say. If the outstanding amount of those 99 5 per cent issues amounted to only a few hundred million dollars and the 3 per cent issue amounted to a billion dollars or several billion dollars, the weighted average yield would be substantially 3 per cent or close to 3 per cent.

Yes, if there were large institutional investors with many millions of dollars to invest, looking at the securities available for investment, they would have to take into account that although there were many, in number, of 5 per cent issues on the market, the amount in dollars of such issues available to them was limited. In determining the opportunities open for investment, we must consider not only the rates, the yield on individual issue, but also the amount of each issue, it is true; but, of course, when we are talking about these companies, and when we are calculating these earnings price ratios, we were talking about companies which had earnings price ratios varying from four to ten, eleven, or twelve per cent. They were all large companies and each one of them had millions of dollars of securities outstanding in the hands of the public.

Yes, Exhibit 205 shows an average approximate yield of 5.15 per cent. Large institutional investors are buying today large quantities of this type of security yielding them only three to four per cent.

1818 Those institutions are faced with the problem of taking securities that are available in such quantities as are necessary for their purposes. Yes, they are constantly faced with the problem of what the available opportunities for investment are and in considering that problem they must consider not only the yield on the issues involved but the amount of each issue.

You ask me to assume that I bought one share at $100 and another share at $200, both of which stocks were earning 8 dollars per share; the earnings price ratio on the two stocks would be 8 per cent and 4 per cent respectively. The average earnings price ratio would be 6 per cent. The investment in those two stocks is $300. The earnings on those two stocks would be $16. On that basis dividing $16 by $300, the total purchase price, the earnings price ratio would show 5⅓ per cent. You ask if that is the type of harmonic mean that I waived aside for purposes of this case. No, where I introduced the words "harmonic mean" I had reference to your question as to whether or not I could check the statistical validity of my earnings price ratio by finding the average of the price earnings ratios and taking the reciprocal of that. That is where I used the words "harmonic mean."

Yes, in preparing the chart in my Exhibit 150, I used the straight arithmetic average. In determining the earnings price ratio on common stock as shown in my Exhibit 209, I did not make any investigation to determine what provisions were made for depreciation, amortization, and depletion by each of the companies involved. The companies included in that exhibit are just exactly the same as the companies which were included in Mr. Smith's exhibit 186.

You ask if it is not possible that such earnings as are shown represent a return of capital as well as a return on capital. It is possible, Mr. Slaff, that the depreciation charges are too low, in which case the actual earnings reported might represent a return of capital to the extent that it is paid out. And conversely, of course, the depreciation in some cases may be too high, in which the earnings may be understated. I haven't made any investigation of these particular companies.

You ask why in my Exhibit 209 I weighted the earnings price ratios by market value, instead of using the balance sheet method. I believe I followed the same general technique that was followed in the preparation of Exhibit 186. I have included certain additional information, to include in the exhibit certain other information that I thought was pertinent. Mr. Smith had weighted his results on the basis of book value. I felt from a statistical point of view, it was unsound to weight them by book value; so I weighted them by market value. You ask if I felt it was sounder to weight them than to take the simple average. I don't

think I had that conscious decision to make. If I had been setting up a number of companies to determine an earnings price ratio to guide me in forming an opinion as to a return which would be demanded by common stock investors, I think I might have weighted the earnings price ratio. You ask if I would not have gotten 9½ per cent instead of 10.45 if I had weighted them in this particular case. I haven't made the calculation.

Recross Examination by Mr. Booth.

I recall stating in the record in this case that it was my theory that the risk to the company was greater because its taxes were lower. I made this statement with an explanation. The simple words, the lower the taxes, the higher the risk, without having taken into consideration the additional statements that I made are misleading, I think. When I stated at page 9638 "We were always afraid to buy the securities of Pennsylvania companies" I was referring to my tenure with the Equitable Company. Yes, I did say that the Pennsylvania Electric Company is one of the principal utilities operating in Pennsylvania, and renders electric service to the City of Philadelphia and surrounding territory. I have not a copy of the list of the securities owned and held by the Equitable Life Assurance Company. I have not a schedule of the securities owned by the Equitable Life Assurance Company as of December 31, 1938.

You have handed me a copy of such schedule. The Philadelphia Electric Company is listed among the companies whose securities are held by the Equitable Company. The total amount of its bonds owned by the Equitable is $11,716,000 of first and refunding 3½'s due 1967. The Duquesne Light Company in Pennsylvania is a large operating company in that state. Equitable owns $685,000 of first 3½'s due 1965 of that company. Equitable owns $4,810,000 first 4½'s, due 1968 and $1,000,000 first 4's due 1965 of Metropolitan Edison Company, a part of the Associated Gas & Electric System. No, I don't think the Associated Gas & Electric System has as high a standing in the minds of the investors as the Consolidated Edison group, the Niagara Hudson group or the North American Holding Company system.

The Metropolitan operates in Pennsylvania. Its headquarters are at Reading, Pennsylvania. That is the prin-

cipal town it serves. It serves surrounding territory in central Pennsylvania.

Recross Examination by Mr. Slaff.

There are other large institutional investors which buy securities of Pennsylvania operating companies. I think I should mention here that the period I was speaking of was during my experience with the Equitable. When we were in some doubt as to the securities of the Pennsylvania utility companies, when their taxes were low and when we would want a higher return, was a number of years ago. Since then anybody who takes the trouble to check it can see that the taxes of these Pennsylvania companies have gone up.

Questions by the Examiner.

On page 9638, line 14, where I said "In the state of Pennsylvania at that time public utility companies did not pay taxes based on the property in the communities which they served," by "that time" I meant when I was with the Equitable which was prior to 1935.

Recross Examination by Mr. Booth.

No, I do not know what the taxes of Philadelphia Electric Company were for 1938 other than income taxes as related to its gross revenue. I cannot state the figures. I cannot state the percentage figures as to any of the utilities operating in the State of Pennsylvania. In my file here there is a tabulation that is released by the Securities and Exchange Commission which I examine from time to time which shows the taxes of some 177 operating utility companies. I have referred to it many times in the course of preparing for this testimony and particularly for the cross-examination by you in Washington. This may be the first time I have mentioned it in the record, but it is not the first time I have looked at it.

1820 *Questions by the Examiner.*

That study came out in the spring of 1939. It covers a series of financial statistics on utility companies which are subsidiaries of registered holding companies for the year 1938.

Recross Examination by Mr. Slaff.

I can't state now the differential in return that I would demand on any Pennsylvania utility securities compared with another utility's securities.

Redirect Examination by Mr. Hedrick Resumed.

In connection with my cross-examination yesterday, on page 9732 Mr. Booth asked me to read into the record some figures from reports of the Peoples Gas Light and Coke Company covering 1930 and 1938 concerning the price paid by that company for gas in those years. From the annual reports of the Peoples Gas Light and Coke Company to the Illinois Commerce Commission for the years 1930 and 1938, I have drawn off the following figures.

In 1930, the total cost of gas produced and purchased was $10,475,979.97. The total amount of gas produced and purchased was 44,828,905 MCF, which, converted to therms on the basis of 535 Btu gas, would give a total of 239,834,642 therms; or an average cost of gas per therm of 4.37 cents.

In 1938 the total cost of gas purchased and produced was $14,297,598.65. The amount of gas produced and purchased was 522,210,715 therms, or an average cost per therm of 2.74 cents.

Question by the Examiner.

I have had a statistician check that 8.20 per cent correction on Exhibit 209 concerning which I testified at page 9742 and he tells me that the figure is correct. I previously stated at page 9690 of the transcript that the 6.29 per cent is correct and that it should not be 6.40 as it appears previously in the record.

1821 (At this point the Trial Examiner made the following statement into the record:

In regard to the two exhibits 189 and 190, which are the indentures between Natural Gas Pipeline Company of America and the Chase National Bank of the City of New York, trustee, in the first case, and the Texoma Natural Gas Company and the Chase National Bank of the City of New York, trustee, it seems to the Examiner that the following material can be stricken under the ruling ad-

mitting these exhibits with a proviso that certain property description would be omitted.

Omitting all after "Main Line" on page 13, in regard to Exhibit No. 189, to the bottom of page 18; pages 19 to the bottom of page 82, everything beginning after the title on page 19, "Beaver County, Oklahoma," retaining all the county names on pages 19 to 82.

Again omitting all particular descriptions of pieces and parcels of lands on pages 82 to 85, on the latter page down to the title, "Miscellaneous Lands In Fee."

Again omitting all particular descriptions of pieces and parcels of land after, "County of Cloud, State of Kansas", which is on page 85 to the third line at the top of page 91, again retaining all county names.

And finally omitting the general description of the Telephone System after the colon on page 91 down to line 28 on page 93.

In regard to Exhibit No. 190, omitting description of land after "Carson County, Texas," page 10 down to the line beginning "Except" on page 31, but retaining all names of counties and state.

Omitting the general description of pipeline beginning after the second colon in paragraph marked: "Second," page 31, down to the paragraph marked "Third" page 32.

Again omitting the description after the second colon of the paragraph marked "Third," page 32 to line 5, page 33.

Again omitting descriptions of real estate beginning after "Gray County, Texas," page 33 to paragraph marked "Fifth," page 43, retaining names of counties and state.

And finally omitting each whole paragraph following the second colon of each of the paragraphs marked "Fifth," "Sixth, Seventh, and Eighth," and with respect to paragraph marked "Ninth," page 45 of the five paragraphs after the second colon down to the paragraph marked "Tenth" on page 46.

The Examiner will instruct the reporter to make extra copies of these omissions in such form that those for Exhibit No. 189 may be attached by separate sheet to Exhibit No. 189 and those for Exhibit 190 may be attached by extra sheet to Exhibit No. 190. With those omissions, the admission of Exhibits 189 and 190 is complete, subject, however, to any corrections counsel may bring to the attention of the Examiner.

(At this point, counsel for defendants offered in evidence certain extracts from the minutes of the hearing before the Committee on Interstate and Foreign Commerce House of Representatives, Seventy-Fifth Congress, on H. R. 4008, March 24 and 25, 1937, being the hearing with respect to what is now known as the Natural Gas Act.
1822 The offer covered specifically Section 4(a) and Sec-
5(a) as shown on pages 2 and 3 for the purpose of showing that the wording of those sections at that time was the same as has been carried forward into the Act as finally adopted.

Defendants then offered the language on page 45 of the same report, commencing as follows: "Mr. Booth. Let me suggest this other amendment," and ending with the quotation on that page, which is the amendment which Mr. Booth offered.

Counsel for defendants then offered some testimony of Mr. Maltbie beginning on page 114 with the words, "Now, there is no provision in here regarding temporary rates," and concluding on page 115 with the statement by Mr. Maltbie "Unquestionably it does. The opinion of the Court of Appeals pointed that out."

The Examiner instructed the reporter to copy the marked sections from the document referred to on the pages referred to, that is pages 2, 3, 45, 114, and 115, at this point in the record as if read. Pursuant to such instructions, the reporter incorporated the extracts from the report referred to as follows:

"Sec. 4(a) All rates and charges made, demanded, or received by any natural-gas company for or in connection with the transportation or sale of natural gas, subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rate or charges, shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.

"Sec. 5(a) Whenever the Commission, after a hearing had upon its own motion or upon complaint of any state, municipality, or State Commission, shall find that any rate, charge, or classification demanded, observed, charged, or collected by any natural-gas company in connection with any transportation or sale of natural gas, subject to the jurisdiction of the Commission, or that any rule, regulation, practice, or contract affecting such rate, charge, or

classification is unjust, unreasonable, unduly discriminatory, or preferential, the Commission shall determine the just and reasonable rate, charge, classification, rule, regulation, practice, or contract to be thereafter observed and in force, and shall fix the same by order.

(Extract of page 45 is as follows:)

"Mr. Booth: Let me suggest this other amendment and then I am through.

"The Chairman: Very well.

"Mr. Booth: First I want to offer for the record a provision which would have the effect of authorizing the Federal Power Commission, under any temporary rate situation to fix temporary rates.

"Mr. Bulwinkle: Fix temporary wholesale rates?

"Mr. Booth: Yes. The proposed temporary-rate provision would read as follows:

"The Commission may, in any proceeding involving the rates of any natural-gas company brought either on its own motion or upon complaint, upon notice and after 1823 hearing, if it be of opinion that the public interest so requires, immediately fix, determine, and prescribe temporary rates to be charged by said company pending the final determination of said rate proceeding. Said temporary rates so fixed, determined, and prescribed shall be sufficient to provide a return of not less than five per cent upon the original cost, less accrued depreciation, of the physical property of said company used and useful in the gas service, plus a reasonable amount for working capital, and if the duly verified reports of said company to the commission do not show the original cost, less accrued depreciation, of said property, the Commission may estimate said cost less depreciation and fix, determine, and prescribe rates as hereinbefore provided. In any such proceeding, whenever the annual depreciation expense is computed upon the sinking fund method, no depreciation shall be deducted from such original cost.

"Temporary rates so fixed, determined, and prescribed under this section shall be effective until the rates to be charged, received, and collected by said company shall finally have been fixed, determined, and prescribed. The Commission is hereby authorized in any proceeding in which temporary rates are fixed, determined, and prescribed under this section, to consider the effect of such rates in fixing, determining, and prescribing rates to be

thereafter charged and collected by said company on final determination of the rate proceeding.

(Extracts on pages 114 and 115 are as follows:)

"Now, there is no provision in here regarding temporary rates. I think Mr. Booth, of the Illinois commission, made a suggestion yesterday suggesting that a section copied after the law in the State of New York regarding temporary rates should be added here, and we have found it very advantageous. We have found that section in the State of New York to be advantageous and it has been upheld by the court of appeals, so that it is the law in the State of New York at the present time.

"There is just one clause in his suggested language which does not meet with my approval, and that is the sentence relating to no deduction for depreciation in case the sinking method is used. I do not want to start on the question of depreciation, because I know that I would get a way beyond your time this afternoon. But, that sentence ought to be eliminated and if any of you are interested, I will be glad to sit down and explain the reasons. I will guarantee that I can show you.

"Mr. Boren: You do not believe then that line 9, page 7—in cases which may arise providing for refunds—you do not believe that refunds or the refund method should be adopted or would be as successful as a temporary rate?

"Mr. Maltbie: I do not. One of the criticisms against regulation everywhere is that it takes so long to get anything done. Complaint is made and then an investigation is had which involves the taking of testimony and with a large company it strings along and the best that you can do is for 3 or 4 years. The public says that nothing happens. Regulation is no good.

"Now, the New York law permits us to issue a temporary order immediately. If we get the rate too low, below a fair return as the investigation shows, then it is adjusted in the final rate. That has worked satisfactorily and as I say has been upheld by the court of appeals.

1824 "The Chairman: In brief, how do you fix your temporary rate?

"Mr. Maltbie: The temporary rate is fixed upon the basis, according to the law, of the original cost of the physical properties, less depreciation.

"Now, we make an investigation. In some cases the books of the company show the original cost of the prop-

erty and we have an order out now which will require all of the utilities outside of the railroads in the State of New York to produce an inventory and show the original cost of their property before the end of this year.

"So, if the book shows we get the original cost from the books. If the books do not show, we are allowed to estimate the original cost.

"Also the depreciation, if the books show accrued depreciation, we take that from the books. If we do not think that they do, we can quickly make an estimate or fix the minimum amount that we will deduct and deduct that from the original cost, getting the original cost less depreciation, taking all of the physical property, material, supplies, as well as plant. Then, an analysis of the operating expenses show what the revenues should be and we can fix a rate of return on it and do fix it. So far there has not been a temporary rate fixed on that basis reversed in the State of New York; not one.

"The Chairman: In effect you give consideration to every fact that you do in fixing the final rate, but you act hurriedly and save yourselves as to the constitutional question in the final rate where you pay the company any deficiency that may be found due.

"Mr. Maltbie: No, Mr. Chairman; I have not included reproduction cost less depreciation.

"Now, according to the law of the land original cost and reproduction cost less depreciation must be taken off of each one and must be considered. There are a number of other things that might be considered before fixing a final rate, but in a temporary rate we do not need to give any consideration to reproduction cost less depreciation; none at all.

"The Chairman: Does not the fact that you subsequently award the utility the proper amount of compensation in case you under-compensate them in temporary rates save the constitutionality of your method?

"Mr. Maltbie: Unquestionably it does. The opinion of the Court of Appeals pointed that out."

(Counsel for the Defendants then offered extracts from the proceedings in H. R. 11662 before a Sub-Committee of the Committee on Interstate and Foreign Commerce of the House of Representatives, 74th Congress at the Second Session, April 2, 3, 7, 14, and 15, 1936. Counsel stated that the provisions of Section 4(a) and Section 5(a) shown on

pages 2 and 3 were offered for the purpose of showing that the provisions of the Act then under consideration were the same provisions as in the Act which is now known as the Natural Gas Act.

He also offered certain statements from pages 28 to 29 and from page 10 and made by Mr. De Vane,
1825 solicitor, Federal Power Commission, with respect to the Act which was then under consideration; the statement offered from page 10 beginning at the top of the page and extending down to the words "I shall not, in my presentation this morning."

He then offered that portion of his statement commencing on page 28, commencing with the language "Section 4 of the bill in general relates to wholesale rates," and continuing through the statement by Mr. DeVane on page 29, ending with the language "If it finds the complaint is well founded, it has authority to prescribe a new rate. That is correct."

At the direction of the Examiner, the extracts offered in evidence from the above mentioned documents were copied into the record by the reporter as follows:

"Sec. 4(a) All rates and charges made, demanded, or received by any natural-gas company for or in connection with the transportation or sale of natural gas subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.

"Sec. 5(a) Whenever the Commission, after a hearing had upon its own motion or upon complaint, shall find that any rate, charge, or classification demanded, observed, charged, or collected by any natural-gas company in connection with any service rendered or to be rendered in the transportation of natural gas in high-pressure mains in interstate commerce, subject to the jurisdiction of the Commission, or that any rule, regulation, practice or contract affecting such rate, charge, or classification is unjust, unreasonable, unduly discriminatory, or preferential, the Commission shall determine the just and reasonable rate, charge, classification, rule, regulation, practice, or contract to be thereafter observed and in force, and shall fix the same by order.

(Extract on page 10 is as follows:)

"Mr. De Vane: Mr. Chairman and members of the Com-

mittee, my name is Dozier A. DeVane. I am solicitor for the Federal Power Commission and have been in that position now for approximately 2½ years. I appear here this morning at the request of the Chairman of your full Committee and of your sub-committee, and that the record may be clear, may I also state that I do not appear in the capacity of a representative of the administration in connection with any legislation that it has submitted to the Congress.

"This Committee will recall that as a part of H. R. 5423 was title III, which had for its purpose the regulation of this industry. Title III of that bill was substantially the same in language as the part of title II that related to the regulation of the electric industry.

"Substantially the only difference was that gas was substituted for electricity in the language of the bill. After the hearings upon that bill, titles II and III—when I refer to title II, I mean that part of the bill providing for an amendment to the Federal Water Power Act bringing under Federal regulation electric utilities—both that title and title III, which provided for the regulation of the natural-gas industry was referred to the same sub-committee and considered by the same sub-committee.

"I suppose it is not out of place if I should say for 1826 the record here that title III, which related to the regulation of the gas industry was not reported out with title I and title II.

"The bill that you have now, H. R. 11662, is in substantially all respects, insofar as it goes, similar to the provisions of the Federal Power Act, with reference to the electric industry. The bill itself does not go quite so far as nor does not confer quite as much jurisdiction upon the Commission as does the Federal Power Act.

(Extracts on pages 28 and 29 are as follows:)

"Section 4 of the bill in general relates to wholesale rates which are the rates that are subject to the Commission's regulation. Section 4(a) provides that the rates and charges shall be just and reasonable.

"Section 4(b) prohibits undue preference.

"Section 4(c) provides for the filing of rate schedules and contracts with the commission.

"Section 4(d) provides for the method of changing rates; and

"Section 4(e) gives the Commission authority to suspend rates pending an investigation when new rates are filed. There is a limit of time within which these rates may be

suspended, and if the case is not disposed of within a period of 6 months in all from the date of their filing they go into effect. This section is substantially the same as the section on the same subject matter in the Federal Power Act.

"Mr. Lea: Mr. DeVane, under what conditions would rates be put into effect? That is, what would be the procedure?

"Mr. DeVane: In the beginning?

"Mr. Lea: Yes.

"Mr. DeVane: The companies will simply file their schedules.

"Mr. Lea: And those schedules would prevail unless the Commission saw fit to, after a hearing and notice, establish a rate?

"Mr. DeVane: Yes, sir; those rates would prevail. The rates that the company makes effective at the date of filing are the rates that will continue in effect until they are changed either by the company, as provided in Section 4, or by the Commission after hearing.

"Mr. Lea: There would be, I take it, no duty upon the Commission under this bill in the absence of complaint or just reason to call for interference to establish rates.

"Mr. De Vane: No, sir; the Commission can only establish rates after investigation and hearing. Now, that investigation can be undertaken under section 5 of the bill either on the Commission's own initiative or upon complaint.

"Mr. Cooper: Let me see if I understand you 1827 there. That is, the gas companies can establish their rates?

"Mr. De Vane: Yes, sir.

"Mr. Cooper: They do not have to go to the Commission; they can establish them themselves?

"Mr. De Vane: You are talking about in the beginning now?

"Mr. Cooper: Yes.

"Mr. De Vane: They file their schedule of rates.

"Mr. Cooper: And they put them into effect.

"Mr. De Vane: Yes, sir.

"Mr. Cooper: And anyone who wants to file a complaint goes to the Commission; is that right?

"Mr. De Vane: That is correct; and they can change their rates, Mr. Cooper, by filing new schedules under section 4(d). After they have filed them with the Commission and announced those new rates, the Commission has the power to suspend and investigate, and the suspending power extends for a period of 5 months.

"Mr. Cooper: Well, does the Commission have the power to suspend as soon as the protest has been filed?

"Mr. De Vane: Not in the case of protests, Mr. Cooper; no, sir. The power of suspension only applies to a new rate.

"Mr. Cooper: What I mean is this, if the gas company establishes a rate and someone files a complaint against that rate with the Commission, does the Commission automatically suspend the rate?

"Mr. De Vane: It has no authority to suspend that rate.

"Mr. Cooper: I see. They first have to consider the case.

"Mr. De Vane: That is correct.

"Mr. Cooper: Does it have authority, if it finds that the complaint is well founded?

"Mr. De Vane: If it finds the complaint is well founded, it has authority to prescribe a new rate. That is correct."

(At this point the Examiner directed the reporter to copy into the record a stipulation among counsel for the commission, for complainant and for the defendants dated December 5, 1939 as follows:

STIPULATION

"It is hereby stipulated and agreed that Exhibits 197 and 198, introduced by the witness, Charles W. Knapp, Jr., on redirect examination and his testimony with respect thereto, page 8580, line 13, through page 8583, line 23, will not be used or referred to on the argument before the Federal Power Commission in the hearing on the motion for
1828 an order for an immediate reduction in rates, and should not be considered as part of this case on such hearing.

George Slaff,
Attorney for Federal Power Commission.
John E. Cassidy, by
Harry R. Booth,
Attorney for Illinois Commerce Commission.
J. J. Hedrick,
Attorney for Natural Gas Pipeline Company of America and Texoma Natural Gas Company.

Dated December 5, 1939.")

1829 H. B. DORAU, a witness for defendants called for redirect examination, testified as follow:

(December 13, 1939.)

Redirect Examination by Mr. Culton.

In my original examination, I made the statement begining on page 5633 that "the imposition of a style of regulation which was developed for and adapted to relatively mature and maturing industries, upon a young and growing industry still in the stages comparable to the early states of these industries now so much more readily regulated, would be a distinct threat to their growth and development," and on line 23 I made the statement that by "style" I merely meant to adapt a somewhat commoner term to express the idea that includes the particular format, layout, procedure, manner, standards, bases, actions, and judgment and that it had no implication in it of the question of regulation at all.

Then, beginning with line 16 at page 5635 of the record and continuing over on to the following page, I testified as follows:

"In my opinion, if there is going to be regulation of an industry in which it is apparent that there is a large function for enterprise to perform, which is an industry still in the stage of development and in which those social results may be looked forward to from the function of enterprise, then all I would want to say is that the responsibility for properly rewarding and encouraging that enterprise definitely falls on a regulatory authority and it will have to assume the responsibility for keeping enterprise properly fed and clothed and alive if,—and this is again assuming,—it desires to keep enterprise alive in an industry of this sort. I believe that if the nature and rigid formula of regulation is imposed on an industry in its teen age, that it will discourage its growth and development, and that the way in which that can be avoided is by a proper and appropriate recognition of the award for the disposition to be enterprising."

In giving that testimony, I certainly did not intend to pass judgment on the question of regulation as such. My discussion, I thought, was perfectly clear. I was merely commenting on certain aspects of the regulatory policy as

adaptable to this kind of an indsutry. I did not intend to imply any comparison between regulation and non-regulation at all in that testimony. So far as I know, I neither did, nor meant to, imply any such comparison. I was discussing an aspect of the regulatory policy. I did not intend in any of my answers to questions propounded to me on cross-examination with respect to regulation to convey the idea that I was opposed to all regulation. That would be contrary to my frequently expressed opinion to the contrary. I have never, to the best of my recollection, in all my life expressed an opinion to the effect that I was opposed to all regulation of utilities or comparable concerns.

I would like just to make the record perfectly clear as to the idea I was intending to convey in my discussion of the question of regulation. Because the questions came and were answered in a rather disjointed fashion, I would appreciate it if I would be allowed to make a summary statement.

I responded to questions raising rate of return issues only, or questions which I considered as having a
1830 bearing on the rate of return issue only. I testified that in my opinion regulation to be most effective and to meet the test of social economy must be adapted to the characteristics of the industry to be regulated, and that, therefore, industries not having the essential and primary characteristics of public utilities are not to the best advantage regulated under the formula which has been developed for public utilities.

I expressed the opinion that industries in which the investment faced a large measure or risk and uncertainty were not suited to a system of regulation which relies on the determination of a maximum or ceiling rate of return since the very nature of risk and uncertainty calls for the chance of gain being held open and the opportunity for profit to appear to exist.

I expressed no opinion as to the desirability or undesirability of regulation as such. I did not express an opinion adverse to the regulation of public utilities and would like to clearly state that my position has always been and continues to be in favor of intelligent, effective regulation of utility industries to the best long-term interest of society as a whole.

With respect to the manner of public utility regulation, I expressed one reservation, namely, that the increasing rigidity, sometimes mistaken for true effectiveness, of the regu-

latory process was discouraging to enterprise and to risk and uncertainty assumption and that under a more exacting administration of the traditional public utility formula which eliminates those classes of gain due to lags, imperfections, and infrequency of rate adjustments, it becomes the responsibility of regulatory authorities to specifically recognize the necessity for enterprise encouragement and reward if it is desired to allow such an industry to develop to its economic optimum.

No comparison as between the states would be justified as to the effect of regulation on the attractiveness of the investment opportunity, because one state might be larger than another and of much greater population, and one might have grown faster than the other. Moreover, it is entirely possible that other factors make one state more attractive than another. It would and could prove nothing unless the situations were otherwise comparable. Thus, as a practical matter, the only comparison which could properly be thought of is that between the conditions which exist in a given state under a given administration and what might be the conditions if there was regulatory recognition of encouragement of enterprise.

You ask whether the fact that an industry continues to grow proves that certain aspects of the regulatory policy and procedure did not have a discouraging or retarding effect. No, I do not think that proves anything of the sort. We know that good money often follows after bad money and it is often the economical thing to do to invest more in order to get a somewhat larger return than would otherwise be available for the original investment. Neither does it prove anything that an industry was able to borrow additional capital or that it invested revenue set aside for depreciation in some additional property. In the case of public utilities, there is usually an obligation to meet the service requirements of the market which the utility has held itself out to serve or for which it holds a franchise. If this requires more capital, that capital must be found. The railroad industry has added to its capital investment despite a long period of unsatisfactory return. It may become
1831 necessary to pay more for additional capital than capital as a whole is earning in order to meet a public responsibility or even to retain control of an enterprise.

You ask if individuals necessarily leave an industry because they become discouraged as to its outlook, that is, because they do not see the possibility of reward in propor-

tion to the enterprise which they have displayed. Obviously not as a general rule, and particularly not those who have been in an industry long enough to have come into positions of managerial responsibility. The tendency is to stay since changes at such stages in life are difficult. The effect of a discouraging outlook in this respect is twofold, primarily on the disposition of existing management to exercise itself as it might if it could look forward to compensatory rewards, and on the attractiveness of such an industry to those who are choosing what industry to enter for the first time.

At page 7123 of the record it appears that in answer to the question "The fact that with respect to this utility there have been frequent rate revisions and frequent rate reductions has not discouraged investment in that utility, has it, to your knowledge" I answered "Not to my knowledge." I then added that I do not believe so. In making that statement, I had in mind in connection with the Potomac Electric Company that not all of the results of good management in the previous period were eliminated by rate reductions. I attempted to make clear that there was a great difference in holding out some sharing in profits as under the Washington Plan and the operation of frequent rate reductions when no such chance of sharing appeared to exist. In this respect everything that can be said in favor of the Washington Plan is in support of my position that regulation would be in the larger public interest if it held out the possibility of an extra gain for extra effort or hazard.

I was asked to enumerate causes of trouble in utilities other than lack of sufficient reserves, and stated that they were undoubtedly financial causes, and then the question of bad capitalization came up. You ask what I meant by the expression "bad capitalization". If I remember correctly, the discussion had to do with natural gas companies and the capitalization of natural gas enterprises. I had in mind the quality of the capital structure rather than the quantity as reported by the total of the par or stated value of all outstanding securities. I was then, and am now, of the opinion that the mere quantity of capitalization was not important for the financial experience of investors in the natural gas industry. I know of no instance where there had been financial failure because of the amount or stated value of common stock outstanding. I was, on the other hand, aware from my studies in investment experience in

this natural gas industry that a disproportionate amount of debt and preferred stock capitalization appeared to be a cause of such financial difficulty. I had found that natural gas companies which were in receivership during the period 1931 to 1938, inclusive, had had 79 per cent of their capitalization in the form of bonds and preferred stock, whereas all natural gas companies had only 55 per cent in debt and preferred stock capitalization.

I had found that natural gas operating companies, including those in receivership, had 50 per cent of their capitalization in common stock, whereas those operating companies which went into receivership had only 20 per cent of their capitalization in common stock; that is, 80 per cent in debt and preferred stock.

I found that the operating companies in receiver-
1832 ship had an average bonded debt ratio of 66 per cent, whereas those not in receivership had a debt ratio of only 35 per cent.

I, therefore, meant by my reference to bad capitalization the presence of a larger proportion of debt capital than was suitable to an industry of this character and the use of preferred stock, which in my opinion, was not generally well adapted to this industry.

On page 7732 of the record, counsel asked if I meant to state of my own knowledge that rates in New Jersey would be lower today if Mr. McCarter had had a free hand to set rates all by himself without the pressure such as it is of the New Jersey Board of Public Utility Commissioners. I was asked by Mr. Slaff in that connection to concede that rates in New Jersey were lower today because of the presence of a regulatory commission than if there had been no regulatory commission, to which I stated that there were other alternatives that I had in mind which counsel might probably not have. The question was then asked me whether in my judgment the rates would be lower in New Jersey today, other factors being equal, if there had been no public service commission in New Jersey since 1911, to which I answered that I was not in a position to say that that would be the fact. I was told at that time that I could later tell the other things that I had in mind. Had I had an opportunity to explain at that time, I would have pointed out that no one could tell what rates would be under those alternative conditions. Certainly no one could tell now whether rates under local regulation compared with commission regulation would be lower or what conditions under

a system of local franchise control might be. Some rates might be higher and some lower. Local regulation would probably make these large uniform rate areas such as now exist in that and other states impossible. Rates in large communities, therefore, might be lower, but, on the other hand, rates in the smaller communities might be higher. I just found it impossible to put myself in the position of answering a question of that sort."

I certainly intended to leave no such impression as that I have appeared here oposing any character of regulation; and if there is anything in the record that validly leaves that impression, I would want to be the first to change it.

Recross Examination Interposed by Mr. Slaff.

I do not believe I am backtracking with respect to what I said in our discussion of investment in Kentucky Utilities as compared with investments in New York, at the time you were cross-examining me. I hope I made it clear at that time—I tried to—that I did not consider Kentucky in other respects comparable to New York, and I am also sure, from the record, as I recall it, I tried to point out that there were many other factors besides regulation which one would consider in making an investment. If that is clearly understood, I think the record is probably satisfactory.

Redirect Examination by Mr. Culton Resumed.

Mr. Booth read from the testimony in the Peoples case a portion of my testimony with respect to pure interest. Since that time I have examined the record in that case and have extracted other portions of my testimony on that subject. I think these portions of that discussion ought to be added, since he made reference to at least a summary of some portions of the testimony. I would like to have in-
1833 cluded, if I might, the questions and answers given on page 9269 of that record, beginning with Mr. Booths question, as follows:

"Mr. Dorau, your conception of the rate of return as you have testified to in this case, consists of the three factors, interest and the risk—

"A. Risk and uncertainty and the wages of management.

"Q. —and the wages of management."

"A. (Continuing.) "You testified before the Commission that the fair rate of return would be about seven per cent?

"A. Yes.

"Q. And of the seven per cent, how much of it is attributable to each of the three items?

"A. The same question— I don't think it is possible for anyone to segregate that in an arithmetic way, such a rate of seven per cent, into the different elements that we have. We think of a figure of three per cent historically as rather representative of interest as such, very often, in a rough sort of way, and build on top of that, the risk premium and the wages of management. There might be a great deal of latitude in the division, but four per cent would cover the risks and uncertainties and such compensation as would be fair and reasonable over that which a passive investment would take, and that seems to me to be the most reasonable figure one could decide on.

"Q. The seven per cent did not include compensation of management?

"A. Yes.

"Q. You said three per cent.

"A. Interest, risk, uncertainty and the wages of management.

"Q. But you said three per cent of the interest—

"A. There is four left to divide among those.

"Q. Oh, I see, is that substantially what you had in mind when you testified before the Commission?

"A. You mean, as a division?

"Q. Yes.

"A. No, I did not— I do not think I attempted— that I attempted to make a division. I know, that back in my mind, the old three per cent is a rather traditional percentage of interest; it may be far from true from time to time.

"Q. Is three per cent far from the truth at the present time?

"A. I think the pure interest element, to calculate in the fair value of a substantial amount of capital, would be higher than the present circumstances indicate. It is fair to calculate it on that basis, but no one, and I, certainly,

would not be influenced by the one and one-half per
1834 cent on government financing, any more than I would

be, by a yield or price of four and five per cent on what we would consider as risk investments. I do not think it has generally been so regarded. We have neither taken the

extremes, up or down, and from a theoretical standpoint it is very doubtful whether pure interest actually fluctuates as much as we are sometimes led to believe by the market.

"Q. Then three per cent strikes you as being or constituting that part of the seven which would represent interest—

"A. I think it is probably a fair per cent to use for pure interest.

"Q. Now, what part of the four per cent did you allocate to risk or would you allocate to risk and uncertainty, and what part would you allocate to compensation for management or wages of management?

"Mr. Daily: I object to that.

"The Witness: It is a matter of opinion.

"Mr. Daily: It has been answered.

"The Witness: A. It is a matter of opinion.

"Mr. Booth: Well, now, Mr. Daily is not answering these questions.

"Mr. Daily: I am objecting to you asking the question; it has been already answered.

"The Master: He may answer it again if Mr. Booth does not recall the answer.

"Mr. Booth: I have asked him a different question.

"The Master: He may answer.

"The Witness: A. That is entirely a matter of abstract opinion.

"Mr. Booth: Well, what is your judgment?

"A. That is my judgment; that is what I am going to give you. You can appreciate from my previous answers that it cannot be reduced to mathematical amounts, yet you want an answer in those terms.

"Mr. Booth: No, I don't want an answer down to four decimal points. You accountants are accustomed to mathematical precision down to five or six points, but I would like to have your substantial judgment on the matter.

"A. I would be inclined to believe that the return available to capital in an industry of this sort, as a whole, and the type of company performs the work, and so on, that the risk and uncertainty, at any time, over and above pure interest, as pure interest, certainly would reach well to the three per cent level.

"Q. And the remaining one per cent would represent what?

"A. As a residue which we can say is a necessary and

additional inducement as compensation for aggres-
1835 sive capital that has to be managed over passive and inactive capital which does not need management."

Mr. Slaff referred to a portion of my testimony in the Peoples case with respect to price levels and as appears on page 7133 of the record he asked me if I were now a better profit as to price levels than at the time that case was tried, in I believe 1937. I have extracted what I said about price levels at that time from the record in the case in which I was testifying and would like to have incorporated here what I said at that time on this point. The questions and answers I wish incorporated here begin at page 9295 and are as follows:

"Q. You were referring to the positive possibility and you made this statement: 'Possibly only a courageous reversal of Government policies which in recent years have added to the usual abundance of funds in the trough of the depression and during the earlier period of recovery, will prevent such a rise in the price level;' did you so testify?

"A. Yes.

"Q. Has the Government taken any steps towards preventing speculative rises in prices. Has there been any recent steps taken?

"A. It is very difficult to interpret the policies of our present administration. I think the fairest answer to that is that they appear to have done both things, trying to work on both sides. Thus, we have seen the President acting to curb the rise in prices of certain raw materials. The President's energetic pronouncement has some element of threat in it with respect to the rise in the price of copper and such things. On the other side we note an effort to increase the reserve requirements of May 1st, I believe.

"Q. Wasn't that intended for the purpose of eliminating the speculation which—

"A. Well, I would interpret it as indicating a possible state of apprehension or anticipation of a run-away credit inflation.

"Q. Tell me, Professor Dorau, do you believe that it is possible to determine with a fair degree of accuracy, what the general commodity price level will be, well, on January 1, 1940?

"Mr. Daily: That is not cross examination.

"The Master: Is that cross examination, Mr. Booth?

"Mr. Booth: That is proper cross examination in view of the fact that this witness has testified as to what the level of commodity prices are going to be.

"The Master: Just a moment, tell Mr. Daily where it is and he may withdraw his objection. He says it is not cross examination.

"Mr. Booth: This witness testified in response to a question addressed to him by Mr. Daily.

"Mr. Daily: I will withdraw the objection.

"The Master: You may answer, Professor Dorau.

1836 "A. I would not be competent to do it, to make such a statement. Of course, that doesn't mean to say that there are not devices available to us on the basis of which we could make—something better than merely a guess.

"Mr. Booth: Do you know of anybody in this country that can determine with a high degree of accuracy the general commodity price level which will exist on January 1, 1940, and thereafter?

"A. I would like to say something off of the record.

"Mr. Booth: I want this in.

"The Master: Off the record.

"Mr. Booth: Will you read the question?

(Question read.)

"The Witness: A. I think there is just one person in this country who would be in position to do that with a high degree of accuracy.

"Q. And what is his name?

"A. Franklin Roosevelt.

"Q. Would you say that the future of commodity prices is dependent upon a great many factors?

"A. Certainly.

"Q. Would you say that one very important factor would be the policies of the present Federal Government?

"A. Very definitely so."

Recross Examination Interposed by Mr. Slaff.

I did not mean at all that that is all that I testified about with respect to rising price levels in that case. I wanted this to clarify merely the portions that were raised here in this case.

Redirect Examination by Mr. Culton Resumed.

In that testimony at that time, I made no prediction as to what the price level would be as of January 1, 1940, and thereafter. I said on the basis of the evidence then available it seemed the reasonable expectation that we would face a rising commodity price level. I made no detailed study of the price levels to determine what the levels are at this time as compared with what they were back at that time, when I was testifying, but I was interested in the Temporary National Economic Committee's release on December 10, which pointed out that as of December 2, 1939, all commodity prices were 105.3 as compared with August 26, 1939. Raw materials were standing at 108.8 on December 2, 1939 as compared with August 26, 1939. Semi-manufactures were standing at 109.7, as compared with August 26, 1939. Finished goods were standing at 103.5 on the same basis, as of December 2, 1939.

Recross Examination by Mr. Slaff.

No, I did not mean to say that I have read into the record everything from my original testimony which we discussed here at page 7133 of this record. I made no statement indicating that. I would not presume to read all of that into the record. I have not read into the record the transcript of those portions of my direct testimony under examination by my own counsel before Master Swissler to the effect that we were in for definitely rising price levels from June 1937 on. I think that is already in the record.

Yes, at page 7133, you questioned me from an abstract of the record in the Peoples case. I did not think it necessary to read into the record at this time what I actually said in the Peoples case in June, 1937, because it is already in the record. I think that part in the transcript was in quotations.

You ask if there is any doubt in my own mind now that in June, 1937 in my testimony before Master Swissler in the Peoples case I testified that we were in for a definitely rising price level. If I may add one more statement as to my recollection of the effect of all that testimony; after making reservations and observations

with respect to the difficulties of any forecasting, I said that in the light of the evidence then prevailing that the most reasonable expectation was that we were in for a period of rising prices. That is already in this record. I am not going back on that now. No, it was not my intention to backtrack on that when I read into the record certain portions of the transcript in that case just now. I merely wanted to clarify that rather limited excursion into it.

You ask if from 1937, when I testified, down to September, 1939 this country was in a period of decline in the general price level. I think, if I remember the indices, I don't try to remember them accurately, we had several months of rising prices following the last available figures at the time of my testimony in 1937, and that irregularly since then we have had a slightly declining general commodity price index.

You ask if it is not a fact that after my testimony in Chicago in June, 1937, the wholesale commodity price index went up in one month only, July 1937. I should like to make it clear, we didn't have the data available at that time; I think the lag was two months at least. There was a period of two or three months after I testified, as I remember, in which the prices were rising. That is what all the discussion in this present intervention is about. I think it declined irregularly, beginning with August, 1937, through August 1939. It ended up at a lower level. I don't recall all the statistics, but I think you are probably correct in stating that it did not increase in any one of those months of the two years following July, 1937, over the preceding month. My recollection is there were two or three months in which it continued to go up after that date. At that time there was a reasonable expectation of a rising price level.

You ask if that reasonable expectation did not turn out to be wrong. 1940 is not here yet. Yes, at that time I testified that in the light of circumstances then prevailing it was a reasonable expectation that we were facing a rising price level. That was my judgment at that time. I think it was a reasonable expectation. No, I am not admitting that I was wrong in expressing it as a reasonable expectation at that time. That was my opinion and I do not admit that my opinion as to what did occur was wrong. It has taken longer for certain factors

to develop than I then anticipated. I say I am not wrong about the reasonable expectation. I will say that the index of wholesale statistics has not moved in the way it was expected to at that time, if that is what you mean to get at.

Questions by the Examiner.

I made no prediction in June, 1937. My testimony
1838 related simply to my opinion which was not primary testimony on my part, either, that in the light of circumstances then existing, in the light of apparent development of trends, it was the reasonable expectation that we were headed for a higher price level. I think the questions were directed at the wholesale commodity prices. I believe that is right.

Recross Examination by Mr. Slaff Resumed.

When you suggest that I held out to the Master on which he might form an informed judgment with respect to how wholesale commodity prices were going in the next year or two or three years, I think you misinterpret the whole matter of forecasting, Mr. Slaff. It was not how it was going to go, but what was the reasonable expectation as of that time. No one can state at any given time what the price level is going to be in three months or six months. If that were the requisite, there would be no sense in making that sort of an estimate or forming that sort of a judgment. All we can do is to give our best judgment. Up to the middle of this year, or the fall of this year, that rising trend had not developed as anticipated. A decline of some seven points in the index is shown. It may be somewhat more than seven. The index speaks for itself.

You ask if it is not true that even with the rise which has taken place since approximately September, 1939, we still today are not at the price level of June, 1937. Not of the all-commodity price level, that is true. I would like to add if I may so there is no misunderstanding, I did not presume to put everything in the record that bore on that question. I merely wanted to get in certain aspects that would explain the circumstances and the limitations on which that observation of a reasonable expectation was made. I wanted to add these excerpts

to provide a little more background for the interpretation of the brief thing that was taken out of the abstract on my former examination.

Question Interposed by the Examiner.

You ask if I am quite satisfied with the statement as it appears in the record, subject to whatever limitations I have just made, that I did testify in June 1937, that in my opinion we were facing a definitely rising price level in commodity prices. Yes, with the exception of the fact that all of the testimony I think is clearly indicative that I was expressing it as a reasonable expectation at that time.

1839 (December 14, 1939.)

Redirect Examination by Mr. Culton Resumed.

In my cross examination some questions were asked with respect to the amortization period of defendants. I have made no attempt to determine what should be a proper amortization period for defendants. I have made no estimate as to what that period shoud be. My testimony was not based on the assumption of any particular period. I assumed that would be determined as the most reasonable possibe estimate in the light of all of the evidence available. After the Commission shall have used its best efforts and determined as best it can what a proper amortization period would be there still remains the hazards connected with the amortization period.

Coming to an estimate, no matter how admirable it may seem at the time, does not remove the risk involved; because making an estimate does not establish the certainty; and the making of an estimate does not reduce the risks that inherently exist. Checking the elements of risk and uncertainty is just a step in measuring and appraising the value of the risk.

I do not believe the investor necessarily avoids risks, but what he is interested in is whether the return possibility is compensatory for the risks and uncertainties involved. I don't think it matters much as such who makes the estimates. It does matter whether the investor thinks the possible rewards are worth the chance that he sees in the situation.

I don't believe that either a public or a private opinion as to what is likely to happen necessarily predetermines or necessarily imposes any restraining conditions on what nature, for example, is going to do, or what the operations of the economic forces are going to do. The most reasonable provision for amortization is not necessarily accurate. It can't be assuredly accurate, because no one can foretell the behavior of natural forces, or for that part, of economic change. All that can be done as to expectations, as with the price level, is to make the best estimate in the light of the circumstances then prevailing. The conditions on which the estimate is made may change radically. They may even change quickly; and it is that possibility that the investor keeps in mind irrespective of the estimates made.

You ask what risks or hazards would be left to be considered by investors after the Commission has exercised its best judgment as to the proper amortization period. I would not assume to take the position of an engineer or geologist, and never have; but it seems to me that to investors there are remaining hazards as to what the possible withdrawals from a given field of this sort might be, as compared with past withdrawals; what the rights of carbon black utilizers might be or might come to be in a field of this sort; what natural accidents underground and other developments there might be. Any one, at least any one acquainted with gas in the least way, understands that such things can happen without any warning.

1840 The rate of withdrawal probably would appeal to the more informed investors as a possible factor influencing the availability, that is, the cost at which natural gas might be available. If he should be more widely read, he might even be concerned about the possible new uses for natural gas nearer the points of consumption, such as a basis for a new chemical industry.

He may even be concerned about public proposals for the proration, or assignment, rather, of the various fuels to various categories of use which might interfere. I don't mean to imply that he is necessarily in a position to accurately and technically appraise the possibilities of that; but he is influenced by any knowledge he may have as to these uncertainties, which no one would be in position to forecast accurately.

You ask if there is any way that the Federal Power

Commission could protect an investor against these remaining risks to which I have referred. Well, that is a broad question. I assume, theoretically there are some possible ways; but as far as I understand the present rules and practice in regulatory procedure, the Federal Power Commission can't assume to protect investors against that sort of thing.

I don't understand that any governmental agency offers to reimburse investors for any experience they may have which is worse than anticipated in any of that type of estimate. A regulatory commission can, of course, in the future increase its own estimates if it has found it has been too conservative; but I don't understand that there is any principle according to which the Commission can retroactively reimburse in case it finds it is wrong on the other side.

In my direct testimony I tried to explain what the investor believes is compensation for the risks involved as he sees them. I might add that he may be relatively ignorant, or relatively well informed, but the thing of practical importance is how he behaves towards this situation in the right of whatever information he may have.

In my cross examination there was some discussion about control of markets. I stated that one of the risks of defendants was that they do not have control of their markets. I used the term "control of market" in the sense in which it is used in public utility literature, when we say that a public utility has control of its market. That is, it is engaged in the distribution business; it has direct access to the customers; it is in position to determine the marketing and merchandising policies. It is in position to determine how much exploitation of incremental or marginal business it is appropriate to go into; in other words, simply the contrast between a company which occupies an industrial and business situation, where it can deal with its market, as distinguished from a situation where it is insulated from its market as a wholesaler is. I would like to say that there was no invidious implication in the word "control", such as might be derived from anti-trust literature or anything of that character.

In my opinion it has been rather generally accepted as a good principle of organization in utility industries to
strive to integrate the production of the service, the
1841 transmission of the service and the distribution of
the service. And the history of the utility industries,

of course, most strikingly the electric industry, is in harmony with that principle. The number of isolated stations is relatively rare. Isolated power plants and isolated transmission lines are not, so far as I know, looked upon with favor by the investor because he does not feel, whatever their arrangements might be, that they are as good or as stable or as reliable as integrated ownership, where the community of interest is completely established.

When I stated that the defendants had no effective control of their markets I meant they were not in the public utility distributing business. They might have a degree of veto of some aspects of marketing policy but they were in no position so far as I know positively to direct or determine what the marketing policy should be with respect to the general distribution of their product.

You ask what I meant in my testimony about the risk incident to the load factor employed by defendants. Well, my understanding is that the property of defendants is being utilized well up to capacity; that in fact it is operated at times over 100 per cent of the stated or rated capacity of the line. Under those circumstances the outlook for increased business or improved utilization, economies or gains from improved utilization would not be very good as compared with the situation where it was operating, say, at 60 to 70 per cent of capacity; and there was some outlook that defendants might take advantage of the unutilized capacity and do a larger or more compensatory business. The risk, therefore, is that in the development of the future with respect to an enterprize operating at nearly full capacity, it might find itself operating at lower capacity, but rather improbably operating at higher capacity.

In my discussion of the risk arising from the possibility of raiding lines I did not undertake to say where those raiding lines would come from. I was trying to reflect the investor's reaction to the possibility of some one offering to bring gas to the Chicago market at a lower price than is now being offered; because some one might be able to bring it under more advantageous conditions, or from more advantageous locations. The possibility of such a thing is what was in my mind, because if some one offered to bring gas at some lower price to the Chicago market it would create an embarrassing situation which I believe would ultimately tend to force the existing company to

give regard to the price level at which such gas was offered.

As a practical matter, in the instances where lines have been built to markets or territories, I recall, by natural gas pipeline companies, it has caused some disturbance or concern to those local markets and they would tend to be forced to capitulate to the most economic price at which gas would be available.

I think I had in mind the possibility that if gas were offered at a lower price to the Chicago market that regulatory commission authorities might well bring pressure. It is not inconceivable that a local distributing public utility company might be asked to point out why they should continue to pay as high a price under an exist-
1842 ing contract when gas actually was offered at a lower price, if an arrangement could be made.

Presumably, if my understanding of the law is correct the Commission has control over the necessity of operating expenses, and the price paid for gas presumably might come within the powers of the Commission. Whether that would break such a contract I am not in position to say. If such a company had to bear the burden of paying the price and couldn't recoup for it the chances are it might some day find itself in financial embarrassment and might find some other legal relief from the burden of such contract.

I didn't presume to make any determination as to exactly what the probability was legally, but simply stated in my opinion in the light of those circumstances that was something the investor, if at all informed about the situation, might give consideration to.

I was asked on cross examination what other fields there are from which gas could be obtained to support a raiding line into the area of defendants' markets. I am not a geologist, as I have stated. I think an investor is rather impressed nowadays with the fact that gas is being found here, there and somewhere else. He may know that Nebraska brings some in or that Southern Illinois brings some in. He is rather getting the idea, in my opinion, that gas might be found most anywhere after a while. So far as my general knowledge goes I have the impression that gas is being found in an increasing number of states and over a wider area. I don't mean to say I know where this gas is going to be found. I don't know that.

If I did know I would probably do something about it. All that the investor is concerned with is that somebody might find gas closer to the market served by defendants.

In my cross examination I made a distinction between incremental business and marginal business of the natural gas company. By marginal business I mean, I think it is the general meaning, that business which is just sufficiently compensatory to be worth taking on. It is the last class of business or the last portion of a class of business which is just worth while for an enterprise to assume to take. It is the business for which cost and income are just in balance. The company would not go any further. It finds it probably worth while only just that far.

By incremental business I had in mind any business which could be taken on additional in the light of the capacity of the property, in the light of the circumstances of the market and in the light of the market already served, at an advantage over and above what the marginal business would yield; referring, therefore, to any additional business. There is no implication in incremental business that it is just compensatory or that it is a burden on any other business, simply a reference to additional amounts of business which could be taken on to advantage. Marginal business would be that business which is only just compensatory.

In my prior cross examination reference was made to the fact that some of the risks which faced defendants in 1931 have been to some extent overcome. You ask if 1843 I think that having in part overcome such risks the investor should be deprived of the fruits of having successfully overcome them. No, I don't believe you can with impunity deprive the investors in any industry of the necessary compensation for the assumption of the risks peculiar to the initiation or early periods of a business enterprise. It is one of the most important risks which he assumes and he expects sooner or later to be compensated for it. In a competitive non-utility enterprise he looks to the time when the business is established as a going concern, at which time he figures the risks in initiation and origination will be over and he will be making a return which will compensate him for his earlier risk assumption. I believe I did testify I did not consider that question ought to be allowed to enter into the rate of return calculation.

I have always felt it was more appropriately given consideration in the determination of going concern value, the value of a going business over and above the value of an enterprise just physically and legally established.

The record at page 7013 shows that during my cross examination I testified in substance that a consideration of the advantages of a given industry is a part of the mental processes of an investor in making up his mind as to the return required by him from a specific industry or a specific company. I added, however, that he could do that in two ways, one of which was by weighing the advantages of the particular industry or particular enterprise against the advantages or disadvantages of another industry or another enterprise.

I said that because I was of the opinion there is no absolute measure of risk and uncertainty; that the determination of risk and uncertainty is a relative matter. The process by which it is arrived at is comparison. I would like to have said at that point that comparisons may be made with respect to a given industry either by reference to a group of industries which by more or less common consent are considered to be more risky, or by reference to a group of industries which are considered by more or less common consent to be less risky. I prefer to begin my comparison with the utility industry which I consider to have involved in it generally less risk and hazard. I prefer to begin with the utility industry, because compared to other industry segments, I feel I know a good deal more about the risks of the utility industry. Also, it appealed to me as the natural and logical thing to do since there appeared to be some implication in this case that the utility status was being prepared for this particular enterprise.

I would say I think the expression probably speaks for itself. What I meant to say was from what I had read of the record in this case and the complaint, what I knew of some people's interpretation of the legislation, it appeared to me that the procedure was going to be that of trying to show that this industry was to be regulated as a public utility industry is regulated, and if that were the case, or if there is any good reason for that at all, it was a perfectly logical thing to start your comparison with the utility industries and think in terms of what additional risks there were in this enterprise as com-

pared with the more commonly understood public utility; entirely practical without any implication as to the merits of the case from a legal standpoint.

1844 I stated on page 7018 of the record that I did not believe it would make any difference in determining the proper rate of return whether a company was capitalized on an all-common stock basis or on a basis of 50 per cent first mortgage bonds and 50 per cent common stock. I believed it was true because I never had the understanding that a public utility is under the legal obligation to go into debt in order to get a fair rate of return. It was my opinion that the fair rate of return should compensate for the necessary supply price of capital at the most advantageous capital bargains that could be made at the time.

As to what the advantageous bargains are that can be made at one time is often a question on which there is a great difference of opinion, some people believing that a long term obligation is advantageous issued at one time, and possibly others differing. When the management makes the decisions as to that, it assumes the risk that it may be wrong at some time in the future. I have always been convinced there is nothing appropriately in the regulatory process that makes it right and proper for public authority to impose on consumers any burdens arising out of the nature of the capital bargains which different classes of security holders may have made among each other and that, conversely, if the hazard that a given capital structure prove disadvantageous at some time in the future is assumed by the equity capital, for example, that should it turn out advantageous in the future, there is no one who more appropriately might have that little differential of reward than those who took the chance of its turning out disadvantageously, namely, the equity ownership.

At page 7038 Mr. Slaff asked me if I had the ratio of bonds to the total capitalization of the Northern Natural. To the best of my information there is about 39 per cent bond indebtedness without giving consideration to surplus. I think the company has something of a surplus, so the ratio is probably something around between 37 and 39 per cent for an average 42-year maturity. If the surplus was considered it would be down to 37, and without giving consideration to the surplus I think it is 39.

At page 7039 Mr. Slaff asked me whether or not I could give the bond interest coverage if defendants issued bonds for 40 per cent of the capitalization of the company, carrying coupons of 3.25 per cent. You ask if I can now give that information. I believe I indicated that I was unable to make that kind of a calculation because I did not know what the rate base of all of the property would be.

I had in mind, of course, the distinction between establishing a ratio on the basis of the capitalization that a given company happens to have and a ratio on the basis of the value of the property. There is no necessary assumption that capitalization reflects the value of the property. Consequently, some concern may have a modest amount of debt, only a modest amount of stock, and carry a very substantial amount of surplus. It might choose to state its common stock at a nominal figure on the balance sheet; thus there is no necessary parallelism between the capitalization and the value of the property.

1845 You ask if in computing times interest coverage it is ordinarily the custom of the investor to use capitalization based on the fair value. When they are trying to discover the coverage of a particular issue, the question does not arise because they take the bonds and the interest on the bonds and the income available for that particular issue, but it is only when they are trying to relate times interest coverage and debt ratio to rate of return that the effect of a possible difference between capitalization and value would have an influence on such calculations. A company, to make it very simple, might show a 40 per cent debt ratio to a formal capitalization but might have only a 20 per cent debt ratio to the value of the property.

I think I stated in my testimony that one normally makes calculations of that sort. I do from time to time. I carried some out further. If you wanted to assume, for example, that a concern had a 40 per cent debt to value ratio, that it was able to finance 40 per cent of the value by debt capital, and that the interest requirements on the bond issue would have to be covered five times, let us say, just for illustration, then it could pay as much as four per cent for its debt capital and maintain those ratios. That is, a 40 per cent debt ratio, and

a five times interest coverage would allow four per cent interest cost on 40 per cent of your investment. And incidentally, if you had a 40 per cent ratio with interest requirements covered five times, the equity, the remaining 60 per cent, would at an eight per cent rate of return earn 10.67 per cent. Those are purely arithmetic relationships.

That example would be pertinent to any rate base that might be used. It is not necessary to know that it is sixty million or sixty-three million or seventy-five million. It can be calculated simply on unity or one hundred. Take one hundred and have 40 per cent of the one hundred as debt and earn the interest requirements on forty dollars out of the one hundred five times over; you could pay as much as 4 per cent and have five times coverage. The remainder would earn at an 8 per cent rate of return 10.67 per cent. That can be calculated for any possible or any conceivable relationship.

In my cross-examination there was considerable reference to the statute of New York with respect to legal investments for savings banks and trust funds. One paragraph of the New York statute, Section 13, was offered in evidence. Subsection A of Section 13 reads as follows:

"(a) Such corporation shall have all franchises necessary to operate in territory in which at least 75 per cent of its gross income is earned, which franchises shall either be indeterminate permits or agreements with, or subject to the jurisdiction of a public service commission, or other duly constituted regulatory body, or shall extend at least five years beyond the maturity of such bonds, and such corporation shall file with the superintendent of banks and make public in each year a statement and a report giving the income account covering previous fiscal year and balance sheet showing in reasonable detail the assets and liabilities at the end of the year."

1846 As I stated on page 7050 of the record it is my understanding that "supplying" as used in Section 13 in the statement "business of supplying electrical energy or artificial gas or natural gas purchased from another corporation" referred to distribution of public utility services at retail. That was my interpretation of the statute in response to questions by Mr. Slaff on cross examination. I had that meaning of the work "supplying" in mind when I answered those questions.

In my cross examination Mr. Slaff asked some questions with respect to the individual enterprisers and the corporate enterprisers. I meant to make no distinction between individual and corporate enterprisers.

At page 7071 I was asked if I had not made the statement, "The gas and electric industries are characterized by decreasing costs, increasing returns, and thus the possibility of lower prices to the consumers." In my judgment there is a difference in the cost behavior of the electric industry and a concern of the character of defendants. That distinction is, I believe, quite obvious if one understands the nature of decreasing costs and increasing returns.

The most generally accepted meaning of the phrase "decreasing costs and increasing returns" refers to that circumstance in any given enterprise which arises out of the fact that its full capacity for production might not at any one time be fully utilized; and therefore, any incremental business can be carried at lower unit costs, because the fixed overhead and common costs of such an undertaking have already been taken care of; and thus any increase in the volume of business up to the point of full utilization would, assuming a constant price for its product and an unchanged cost level, result in a lower unit cost for the service or product of that enterprise. It is quite possible that any enterprise which has unutilized capacity could experience decreasing costs and increasing returns if it got more business.

That behavior has been particularly evidenced in the electric industry because in the electric industry the capacity has to be capable of meeting the peak load demand; and consequently any additional business which you can get at off peak hours can be taken on to great advantage; but once the total capacity of a plant is reached that kind of decreasing costs and increasing returns is no longer available.

I don't think there is any probability that that cost behavior to which I have referred such as has been experienced by the electric industry would apply to defendants. If I am correctly informed, this enterprise has been operating nearly at full capacity, and consequently there is apparently no basis for a decreasing unit cost experience of that sort.

Moreover, it does not seem to qualify on the other two

assumptions which are always necessary, namely, that the level of cost experience as such remains unchanged, and that the revenue rate remains unchanged.

Here you are dealing with natural resources, a situation which affords every reason to believe that increased costs per unit of raw material will develop in the future. Consequently, you have no opportunity for the aforementioned type of decreasing costs; and there ap-
1847 pears to be reason to believe that there will actually be increasing costs insofar as the circumstances under which the raw material is to be provided are as I assumed they were.

In my cross-examination some questions were asked me with respect to the earnings of defendants and their depreciation or amortization. Clearly, I have not endeavored to ascertain the value of the properties of those companies, their earnings or the proper amounts of depreciation or amortization. I was interested only in the question as to what the ratio of the return ought to be to the rate base. I am not in position to determine the value of the rate base, nor to appraise the validity of the operating expenses and thus determine the return in dollars.

On page 7170 of the record it appears that the Examiner asked whether I had the figures on the Northern Natural Gas Company with respect to its revenue and the sources from which it was obtained. I attempted to obtain those figures and so far as I know this is the best form in which they are available. As of the twelve months ending June, 1939, the revenue from domestic sales made directly or through subsidiaries of this company was $1,006,942; for commercial, $615,258; and for industrial, $2,909,681; making a total sold directly or through owned subsidiaries of $4,531,881. Town border sales are reported at $6,029,586 which should add up to an overall total of $10,561,467. I obtained these figures from Mr. Gilman who had received them from some insurance company. I asked him if he would give them to me from reports he had. My only interest in bringing in these figures is that the Examiner asked me about it. I haven't checked these figures with the companies and can't assume any responsibility for them; it is my understanding that those are the figures that the insurance company got.

Questions By the Examiner.

The MCF figures in that connection were: For domestic, 1,493,320; for commercial, 2,053,272; for industrial, 18,721,-922; or a total of 22,268,514 sold directly. The total town border sales aggregated 24,876,729 MCF, making a grand total of 47,145,243 MCF for direct and town border sales. That is the best information I was able to get. I could not find it in Moody's.

Redirect Examination by Mr. Culton Resumed.

I recall reading the examination of Mr. Emery with respect to an exhibit which he offered in the Chicago District Pipeline case relating to comparative yields on bonds, preferred stock and common stock in the ratio or 1, 1.1 and 1.4. I tried to acquaint myself with it and I believe I understand the formula he employed. If that formula be properly used it is probably a satisfactory device for use in determining a proper rate of return, but if such ratios are going to be employed against, let us say; an average bond yield, all of the elements used ought to be brought up to date as of one time. Averaging the base of bond yields after bringing them up to date and then applying a multiplier as of some particular date, does not appeal to me as being a reliable and valid statistical procedure.

1848 The relationship between those different classes of securities or the spread of relationship between them might very well change in the companies which were used to determine such ratios. It might be different from one time to another.

If I can just use an illustration I can possibly explain it. It is possible that in tabulating a list of companies of that sort you may have a company which had only preferred stock, no debt, and common stock; and the preferred stock may be in a very good position and have a relatively low yield. The next company you might take might be one which had a very high ratio of debt or little or no preferred stock and the rest common stock, and so on down, with any possible type of combination. Consequently, it is mathematically possible that within the preferred stock there would only be the best preferred stock, that within the bonds there would be bonds of very high debt ratios and consequently you may come out with an overall summation

of 1.1 for the preferred stock yield compared with the bond yield. In fact, it is arithmetically possible, using that device, to come out with less than 1 ratio for the preferred stock. Consequently, unless you determine all the relationships and their validity at a given time, and check on that, I would say that that method might be unsafe.

The change in the corporate structure of such companies as are considered during the period of years changes the relationship between the different classes of securities. That is so especially in this industry where securities are issued under very heavy retirement requirements; seven or eight years later might show a much smaller proportion of bonds outstanding than at some earlier period. I think it is a very dubious statistical procedure.

Mr. Slaff asked me how many bonds I had used in my exhibit which were not rated by Moody's and which were privately held. I tried to ascertain that for him and found twenty out of the list I had were privately held. I would like to say, however, that I am not privileged to assume that the rating services never rate privately held bonds, or what the reason is why they do not rate them. They refused to commit themselves with me on the matter, so I must go on the assumption that since they were privately held that the reason is they would not be given any rating. That is all I can do.

Recross Examination by Mr. Booth.

If I were running a company it doesn't necessarily follow that I would provide for capitalization in relation to its fair value. What I was speaking about, of course, was formal capitalization. I want to get that clear. You ask if as an economist it is my notion that economically it is sound and proper to set up a capital structure with no relation to its fair value. No, as a practical matter it rarely develops because we have the surplus item to which I referred; and there is no practical necessity for making continuous readjustments in formal capitalization. What I pointed out was that the dividing line between formal and informal capitalization is less easy to distinguish with the introduction of no par stock, and the liberality with reference to stating the value of no par stock, and the possibility that capital is largely reflected in surplus.

1849 I think there are times when a company's capitaliza-

tion ought to be brought in line with the facts disclosed by appraisals or reproduction cost appraisals of engineers. There are times when they are justified in readjusting the capitalization upwards in accordance with the facts. No, I do not think that the capitalization ought to be increased merely because an engineer states that the reproduction cost is $25,000,000 higher than the investment in the property. I don't think that would be sufficient evidence; but when a management is firmly convinced and the facts have been established over an extended period of time that there is a wide disparity, I see no reason, given perfect information and making a perfectly clear statement as to what it is doing, why it might not be adjusted.

If under those circumstances there has been a sharp decline in prices and the engineers determine a year later that the reproduction cost is $25,000,000 less it would be no different than if the value of the property a year after its inception gets out of line with its capitalization.

Yes, I testified in the Peoples Gas Light and Coke Company case.

1850 S. E. CAMPBELL, a witness for defendants, called for recross examination, testified:

(December 14, 1939.)

Recross Examination by Mr. Booth.

I am Secretary of Natural Gas Pipeline Company of America. I am somewhat familiar with Exhibit No. 136 presented by Mr. Miller in this case which is the earnings statement of defendants. That exhibit was prepared by Mr. Miller under my general supervision.

Page 1 of this exhibit is a statement of combined profit and loss of defendants for the years 1932 to 1938, inclusive. Column 7 shows the combined profit and loss of the two companies for the year 1938. Included in that column under the caption "Other Charges" is an item for depreciation in the amount of $1,978,408.31. That depreciation figure is made up of various percentages applied to the different groups of the plant account.

You have shown me a sheet headed "Depreciation Expense Year 1938 for Natural Gas Pipeline Company of America" which you state was taken by your accountants

off the books of that defendant. That sheet shows the depreciation rate as used by that company for 1938 was 4 per cent with respect to Account 1002, rights of way; Account 1005, main lines; Account 1006, compressor stations; Account 1008, telephone system; Account 1009, meters and regulators; Account 1010, other main line structures; Account 1011, branch lines to distributors. That is the rate which the company used in 1938 for those classes of property, in computing the depreciation for those properties.

That sheet shows that for Account 1013, tools, the depreciation rate was 20 per cent; for Account 1014, general laboratory equipment, the rate was 10 per cent; for Account 1015, automotive transportation, 25 per cent; and for Account 1016, furniture and fixtures, the rate was 7.5 per cent. Those percentages were related to the average book cost of the company contained in the various accounts for the year.

There is a difference between the rate of depreciation applied to the properties of Texoma Natural Gas Company and to Natural Gas Pipeline Company of America for the same classes of property. I don't know whether I can recall all of the rates applied in depreciating Texoma's properties. I do know that compressor stations, for instance, are 6 per cent. I believe main line is 2.5 per cent; gathering system, I believe, is 2.5 per cent; automotive equipment is 25 per cent; gasoline plant is 10 per cent; furniture and fixtures, 7½ per cent; laboratory, 10 per cent. I don't believe I can recall the others. Those are the major items, however. Those percentages are related to the average book cost for the year. There is no change in the percentages applied to Texoma's properties for the year 1939.

Yes, I am familiar with the fact that the Federal Power Commission has recently promulgated a classification of accounts for natural gas companies. I don't believe I
1851 can state that that classification of accounts provides for the computing and the determination of annual depreciation expense in relationship to the book cost of the company's property. I don't know. I don't believe I can answer this question because I haven't studied it thoroughly yet. I have a copy that has been turned over to the men in the accounting department. I haven't made a thorough study of the classification as yet.

I was present at the hearing before the Federal Power Commission in connection with this proposed classification of accounts. I did not make a personal appearance. The

defendants were represented by their attorney, W. A. Daugherty. I would say the company was given an opportunity to make objections to the proposed classification of accounts prior to the time it was promulgated. Our company officials did not discuss the position the company would take with respect to that classification of accounts. We left it up to the attorney, who was working through an A. G. A. committee. It was left to that committee to make the objection and we permitted our companies to be included in the group objecting. So far as I know the company never suggested that the determination of annual depreciation expense should be computed on the basis of value of the companies' property as distinguished from book cost in connection with this proposed classification of accounts for defendants. As far as I know defendants never suggested the annual depreciation expense be computed in the classification of accounts on the basis of reproduction cost. So far as I know defendants never suggested that the item of going value be allowed for or be amortized in the proposed classification of accounts.

Redirect Examination by Mr. Hedrick.

I stated that W. A. Daugherty represented our companies at that hearing in Washington. Mr. Daugherty is a member of the board of directors of the Natural Gas Pipeline Company of America. He is attorney for the Standard Oil Company and he represented the A. G. A. committee at that hearing.

Recross Examination by Mr. Slaff.

That was an industry committee presenting the views of the industry to the Federal Power Commission with respect to the proposed system of accounts.

Recross Examination by Mr. Booth Resumed.

You ask how the items of depletion and retirements for 1938 included under the caption "Other Charges" on page 1 of the exhibit we have been discussing were arrived at. The depletion is arrived at by taking the amount of gas under each acre at the beginning of the life of this project which was, as I recall, estimated at 12,000 cubic feet. I

would like to be able to check that, though, in case that is wrong. Taking as a factor the book cost of the acreage we arrive at the depletion factor for each unit of gas taken out, whether the unit is M. C. F. or a cubic foot, as you might determine, and that factor is applied to the acreage on the books by months. That estimate of 12,000,000 cubic feet per acre was made, as I recall, as of 1931.

1852 The item of retirements is the difference between the book cost and the depreciated value of the items retired less any salvage value. In other words, if we have accrued less than the book cost of an item of property, when that is retired there is charged to retirement expense the difference between the accrual and the book cost of the property less salvage. Stated another way, it is the undepreciated portion less the salvage value.

Questions by The Examiner.

You ask how we arrive at the depletion factor. You have a total reserve; your production divided by your total reserve gives you the ratio or the factor. The factor changes from time to time as the acreage changes and it changes each month with the amount of the production each month. The factor changes every month and as the acreage increases or decreases the total reserve changes or decreases. That actually changes the figure every month. Yes, I meant there when I was talking about changes in our figures that the factor would change from month to month and consequently our monthly, and finally, our yearly figures for depletion would vary from year to year or from month to month. That is, the financial figure would vary.

You ask how these depreciation rates compare with past depreciation rates used by the company. On Texoma they are the same. On the Pipeline they are a little higher than we had in the earlier years. The change was made in 1938 when the depreciation rates were increased.

(At this point argument was had on motion for interim order before the full Commission in the hearing room, Hurley-Wright Building, 1800 Pennsylvania Avenue, Washington, D. C., at 10:00 O'clock A. M. on December 18, 1939.)

1853 ROBERT H. DELAFIELD, a witness for defendants, called for redirect examination, testified:

(January 8, 1940)

Redirect Examination by Mr. Morgan.

I testified in this case about Saturday, October 28, 1939. I have gone over the transcript of my testimony for the purpose of determining whether or not I have any corrections that I wish to make in the record. There are a few typographical corrections and those, I believe, have already been turned in to the reporter. There were the following errors:

On page 6710 to 6712 I testified about a high pressure line in New York State belonging to a subsidiary of the Standard Oil Company and running north and south across the Pennsylvania-New York line. I was in error and had that line confused with a high pressure line belonging to the same interests running from Pittsburgh to Charleston. The line in New York State is not a high pressure line.

In page 6778, lines 15 and 19, 20 and 21, either I was confused in testifying or the record is confused in words. There are none of them particularly important.

In line 15, the words "small section of" should be stricken. At that point I was testifying about the Seaboard line and said it was only a small section of pipeline. It is a large section.

The next answer reads on the record this way: "One is a distribution company, one is a transmission company, one is the Amere Gas Company. I am sorry, that is wrong. It only has two subsidiaries now, I think. One of those companies has been dissolved."

That is an error, and the answer should read: "Two are distribution companies, one is a transmission company and one is the Amere Gas Company." That "I am sorry, that is wrong" and the rest of that answer comes out. There are three subsidiaries, the Amere Gas Company is the third subsidiary.

On page 6780—this is a very minor—line 23, I say that Bracken County Gas Company is a land owning company. It is not; it is a distribution company with about a hundred customers, a very small company.

Now, beginning at page—I am sorry that I have not got that page, where Mr. Slaff's calculations begin on the rate of return—I think it is on page 6777 and from there on there are numerous calculations on rate of return, and I think it was agreed, or so I understood at that hearing, that I would accept Mr. Slaff's calculations for that purpose. In checking them over, I find no errors of real importance, most of them being in the second decimal place, but I thought I would give you the check.

In my cross-examination Mr. Slaff asked me a great many questions concerning a document which our company had filed with the Securities and Exchange Commission in which the earnings of a number of subsidiary companies of the Columbia Gas & Electric Corporation were
1854 brought out and discussed. I believe that the average earnings of those subsidiaries was some 3.52 per cent as stated by Mr. Slaff and to which I agreed in substance. That document and my testimony concerning it is dealt with in Mr. Slaff's first brief in this case and is referred to as an indication that notwithstanding these low earnings Columbia Gas & Electric Corporation expects to refinance some $90,000,000 or $100,000,000 of indebtedness at a rate more attractive than the present rate.

Columbia Gas & Electric Corporation has at present approximately $104,450,000 of 5 per cent debentures outstanding. The financing that we contemplate is to refund those with an issue of approximately $90,000,000 of debentures in a different form. The difference is to be made up from cash.

This 3.52 per cent average earnings of the subsidiary companies referred to in that document is based on the earnings for the year 1938. The latest earnings that I have available are for the 12 months ended November 30, 1939, and they are substantially higher than the earnings for the 12 months ended December 31, 1938. For the year 1938 the gross revenues consolidated of the Columbia System companies were $92,968,000. For the 12 months ended November 30, 1939, they were $99,264,000, an increase of approximately $6,000,000. The per cent increase was 6.2.

The gross corporate income for the year 1938 was approximately $21,500,000. For the 12 months ended November 30, 1939, it was $24,500,000, an increase of approximately $3,000,000, or 14 per cent. After the payment of all interest charges on a consolidated basis, the income available for the stocks of the Columbia Gas & Electric Cor-

poration in the year 1938 was approximately $10,300,000, while for the 12 months ended November, 1939, it was approximately $13,065,000—an increase of $2,752,000, or not quite 27 per cent.

Making my calculations here on the stand, which are necessarily approximate, the figure that would correspond to the figure of 3.52 would be approximately 4.25 for the year ended November 30, 1939. The divisor is approximately $578,500,000 to be divided into $24,700,000 approximately.

Questions by The Examiner.

You point out that with respect to 1938 the gross corporate income there is $21,500,000 and I use for the November 30, 1939, rate return result $24,700,000 which corresponds to the $24,500,000 gross corporate income which I gave for the 12 months ended November 30, 1939. You ask why I use that figure which corresponds to the $24,500,000 rather than a figure which would correspond to the $19,655,000.

I think that those two figures do correspond. The difficulty is this. I am working here from an operating report. Mr. Slaff had worked from a report to the Securities and Exchange Commission on a little different form, and as you go down the statement, the figures change in the statement, but not the final result. There are figures within the statement which I have had to add and subtract, but they come to the same thing.

1855 Let me give a final measure of the increase by saying that the very lowest figure on the statement, which would be exactly the same in either Mr. Slaff's statement or this statement, shows earnings available for stocks of the Columbia Gas & Electric Corporation for the 12 months ended November 30—I beg your pardon—for the common stock of Columbia Gas & Electric Corporation, for the 12 months ended November 30 of $6,605,000-odd,—an increase of $2,752,000 over the preceding 12 months, that is, the 12 months ended November 30, 1938, because I have not available to me here the 12 months ended December 31, 1938. These figures will not correspond exactly, because I am making a comparison with a 12 month period ended November 30, 1938, and while the relationships will be the same, the exact dollars wont.

Yes, I know what that $19,655,000 is. It is the gross

corporate income on a consolidated basis for the year ended December 31, 1938. The 1938 figures I have just given in the record are not the year end figures but the November 30 figures because that is the only way I could compare them. The relationships will be the same, but the exact dollars wont.

Redirect Examination by Mr. Morgan Resumed.

If we were refinancing the present value of the consolidated properties, which we will assume to be $578,500,000, between 15 and 16 per cent of the total valuation would be represented by this contemplated bond issue of $90,000,000. I think to make this statement perfectly clear I might read into the record a tabulation of the consolidated capitalization of the system and relate it back to earnings that way.

These figures are as of December 31, 1938, in order to correspond with the previous testimony. At that time the Columbia system had outstanding the following capitalization:

"Subsidiary Bonds	$79,167,000	16%
"Subsidiary Preferred stocks and minority	50,180,000	10%
"Columbia Debt	104,450,000	21%
"Columbia Preferred Stocks	110,101,000	22%
"Columbia Common stock, surplus, etc.	155,116,000	31%
"Total	499,014,000	100%"

That was the capitalization of the Columbia Gas & Electric Corporation and its subsidiaries at December 31, 1938. It had income for that year to support that capital structure of about $21,635,000, and the charges on the subsidiary company debt, preferred stock and the very small minority plus the interest charges on the Columbia Gas were $11,404,000 approximately. So that on a consolidated basis, the system earned all of its charges prior to its preferred dividends, about 1.9 times. That is looking at the picture in the worst way.

If you consider only the Columbia Gas & Electric Corporation itself, it had for the year ended December 31, 1938, gross corporate income of about $14,273,000, and its inter-

est charges were—that is, interest charges on long term debt—were $5,228,000, so that it earned its interest charges almost three times.

1856 In qualifying and saying "interest charges on long term debt," I want to make clear that there was no short term debt, but there is interest on reserves and things like that.

In addition to those facts, Columbia Gas & Electric Corporation owns natural gas subsidiaries with gross fixed property and the figure that we were using in the cross examination was approximately $400,000,000. Those assets have against them only $10,500,000 for subsidiary debt. Adding that to the Columbia debt of $104,000,000-odd you get $114,950,000 of debt against the properties with a gross book value of $400,000,000. Those are only the gas properties.

Columbia, of course, owns in addition, 100 per cent of the Cincinnati Gas & Electric Company, a combination company; 100 per cent of the Dayton Power & Light Company, a combination company—and by "combination", I mean electric generating and distributing and gas distributing—and practically 100 per cent of the stock of, that is, over 95 per cent of the stock of the Union Light & Heat Company; and the electrical revenues, forgetting those companies' gas revenues but the electric revenues from those companies over a period of 3 years have in each year been approximately 95 per cent of the total carrying charges of Columbia Gas & Electric Corporation debt.

Otherwise stated, Columbia has in addition to any gas earnings, electric earnings available to it which fail by only 5 per cent to cover its total debt charges.

I have tried to point out in previous testimony that the risk on an electric company is materially less than the risk on a natural gas company, and the effect of those electric earnings improves the credit of the Columbia Gas & Electric Corporation which is also affected by the very low relation of debt to total property.

To make an exaggerated but perfect example, I testified on direct that the Ohio Fuel Gas Company, with assets in excess of $100,000,000 and earnings in the neighborhood of $4,000,000 had outstanding approximately $5,000,000 of notes. Let us assume that the Ohio Fuel Gas Company earned only 1 per cent on its $100,000,000 of assets. That would be $1,000,000. The $5,000,000 of 4 per cent notes

would have interest of $200,000. So that earning only 1 per cent on its property and having a $5,000,000 debt, a company in that shape would have 20 times more property than debt, and would earn its interest charges 5 times. And I think that those obligations could be sold by a gas company.

In conclusion, the point of the rate of return is not to finance the underlying and best debt that a company has. You have to finance its entire capital structure including all of its common stock, which in the case of the Columbia Gas & Electric Corporation is approximately $500,000,000. But it is perfectly evident from the fact that Columbia's 6 per cent preferred stock is currently selling at a discount of 10 per cent, and that its common stock is selling for less than half of its book net worth, that on the returns which we arrived at in the cross examination, it would be impossible at the current market quotations to raise that amount of money.

1857 If we were refinancing the capital structure of the Columbia Gas & Electric Corporation at par the investing public would demand a very substantially higher earnings than our present rate of earnings to finance the equity securities. The $500,000,000 is the capital structure whereas the property value set up on our books and which was used in the calculation I made to arrive at the 3.52 per cent earnings was some $559,000,000. This figure as of November 30, 1939, has been increased to $578,500,000; but in figuring it with Mr. Slaff we took out certain intangibles just by estimate and that accounts for the difference between $559,000,000 and $578,000,000. I am afraid we are going to confuse this by a multitude of figures here. If we were refinancing the Columbia Gas & Electric Corporation the capital structure would be a most important factor. The amount of debt to the whole is conservative; it is low and therefore lower earnings will serve to carry that capital.

It is my thought that this $90,000,000 indebtedness to be represented by the new issue of bonds on which we are working in the Securities and Exchange Commission can be accomplished at less interest than the interest which is being paid on the outstanding indebtedness. We think we will be able to do this largely because we are going to change the form of the issue as I testified in answer to Mr. Slaff's question. The fact that this is a refunding

operation is of importance in the matter of our ability to refinance at a saving of interest.

Questions By The Examiner.

We plan, Mr. Examiner, to sell a serial issue with maturities of from 1 to 10 years, and then 3 maturities, one 15, and one 20, and one 25—that is the present plan if we get to it—and of course, the interest rate on those very short maturities is extremely low; and that is what I mean by the form of the obligation making a great difference in its cost. The existing securities mature in three lots, some $54,000,000 in 1952, and $50,000,000 in 1961, and obviously a serial and 100 per cent sinking fund issue is a much better form of financing for a company that is heavily in the natural gas business.

In this refinancing issue there will be 10 serial maturities and then 3 maturities on a 100 per cent sinking fund basis. The rate of interest on our two existing maturities is 5 per cent. The rate of interest on the new serial issues in the refinancing will depend on the market when we are able to bring it out, but it will run from 1 per cent to 3½ per cent, 1 per cent on the first year, 1 and a fraction on the second, one and a bigger fraction on the third. You see, as we go away from the date of sale the risk increases to the investor and he demands a higher return. If we are able to sell in the existing market our interest savings should be approximately $1,500,000 per year. Our total interest today is about $5,400,000.

Redirect Examination By Mr. Morgan Resumed.

That would reduce it to about $3,900,000 a year. That interest would be on the $90,000,000 or on the amount necessary to take up the entire present debt. When 1858 I speak of a savings figure of $1,500,000 it is on $90,000,000 and not on $104,000,000. I think I would say there that of course the reduction in that debt makes a big difference in the sale of the securities. A reduction of $14,000,000 in your debt makes it easier to sell the balance. When we have accomplished that refinancing, if we do, Columbia Gas & Electric Corporation's part of the income of its electrical subsidiaries will be sufficient to take care of all of its fixed charges. It will be more than

Columbia Gas & Electric Corporation's total interest charges. I mean that Columbia's proportion of the net earnings of the electric companies which it owns, earnings available to it, will exceed the interest on the proposed new financing and that income, as well as the income from the gas properties, will be behind this bond issue.

We are talking about a consolidated picture. That is the income of the subsidiaries. In view of the fact that Columbia owns them wholly it could take that income, if it wanted to, and the sum of their income before being taken in dividends by Columbia will be substantially in excess of Columbia's interest charges, and I am sure that if they pay reasonable dividends that the dividends received by Columbia from electric operations would be more than its interest charges.

In the course of my cross examination Mr. Booth asked me some questions going to the point as to whether the natural gas industry is or is not a fully developed industry. I have given some further thought to that subject. The point that I had in mind was that in the past 10 years there has been an enormously rapid growth of the natural gas industry, and I named over or attempted to name over at that time, in response to a question by either Mr. Booth or Mr. Slaff, the number of states in which natural gas was served. Nor, those states, for example, Alabama, Arizona, Florida, Georgia, Iowa, Nebraska, Virginia and the District of Columbia have received natural gas or have been served with natural gas since 1928.

The following cities have been served with natural gas since 1928, that is, gas has been introduced in those cities for the first time or for the first time in many years. I believe one city did previously have natural gas. The cities served since 1928 are: Atlanta, Detroit, Ft. Wayne, Memphis, Minneapolis, Oakland (California), San Francisco, Chicago, Omaha, St. Louis, Syracuse, Washington. All of those cities are not served with straight natural gas—some are served with mixed gas as Washington is.

Due principally to this tremendous addition to the market, the number of gas customers which in 1928 was approximately 4,366,000, that is the number of natural gas customers, had increased by the end of 1937 to approximately 9,067,000. The source of the figures that I have just given is the United States Mineral Year Book for 1939 and Brown's Manual of Gas Companies. When I say

that all of these cities are not served with natural gas I mean that some of them, for example, the city of Washington, are served with mixed gas, natural and manufactured gas. Chicago has the same thing, of course. In qualifying that they received natural gas for the first time I am not perfectly certain that the city of Ft. Wayne, some 1859 20 years ago, did not receive for a short time, natural gas. I am not positive but I am under the impression that it did; so that one city has at one time been on natural gas service.

The customers' figures I gave are the customers in the cities that began to use natural gas, roughly within the past decade, mixed or otherwise. The point is, where I differ from Mr. Booth, I think that any industry that has grown as rapidly as that in as short a period has, by the very rapidity of its growth, incurred risks. They are dealing in new markets. Ten years is not a long enough period to know what you are up against in marketing your product. In addition to which, the enormous increase in the use of natural gas, if anything, adds to the risk of depletion and exhaustion.

I think, Judge Morgan, if I may state so, we have a perfect example of exhaustion facing us now which is extremely serious. Could I use that as an example here?

In about 1931 the natural gas fields in southern New York and northern Pennsylvania were brought in. I think in March, 1931, the big well in the Tioga field came in, and as I remember, it came in at about 60,000,000 feet a day and around 3,000 pounds pressure. It blew the rig away, and they had to send to Texas for assistance to get it capped. That well was in the Oriskany sand. From that time until the present, there has been tremendous development of natural gas due to exploration in southern New York and northern Pennsylvania, largely in the Oriskany sand. Less than a year ago, the head of one of the big gas companies testified that in his opinion he had 13 years supply of gas. Last year in April I talked to the head of one of the big producing companies and his geologist and they told me that they had years' supply of gas for their market. In April again our head geologist testified before the Securities and Exchange Commission that he did not think that there was much more than a year's supply, and while his testimo , without being facetious was not characterized as airy, ...ey felt very strongly that he overstated his case. That was April, nine months ago.

In February in 1937, Godfrey Cabot completed a line to Rochester, a distance of 90 miles, at a cost of approximately $1,700,000. A year ago he was delivering 30,000,000 feet a day through that line, principally to the Eastman Kodak Company. At present he is only able to deliver 3,000,000 feet and he has notified all customers that the service will cease in July of this year.

Over the last week end, in order to supply our properties in New York, it was necessary to take about 1,700,000 feet of gas from Pennsylvania through the western end of the system due to the small amount of gas supply, and a good many geologists think that the gas production in that area is very close to over. We have substantial reserves under contract, and as our geologist testified, can go on for a long time, but within the past week we have been considering looping our lines in order to supply gas from the west.

The point is that within a year some of the best informed men operating in that territory thought they had years of supply of gas, and there was at least one operator who felt so strongly enough three years ago to spend $1,700,000 and he has, unless he can discover new sources, lost just that much money. That is one of the risks in the gas business.

1860 I mentioned a while ago that we brought in 1,700,000 cubic feet per day from our western lines. If we had been relying solely on this southern New York-northern Pennsylvania field, the Tioga field, the domestic customers at the western end of the line would have suffered from shortage. As it was we had to let go all boiler load and dump load because we had no gas to serve that load.

Questions by the Examiner.

You ask why we did not use our reserves. In that territory, Mr. Examiner, we purchase our gas under contract and we own a minimum amount of acreage. The difficulty is that the geologists figured on a certain amount of gas and competitive drilling in that section has been extremely hard. Gas has been taken out from under the property of the owners and they consequently stand to lose their investment in transmission lines.

Redirect Examination by Mr. Morgan Resumed.

By my statement that we have reserves under contract sufficient for a number of years I mean our contracts in that territory are long term contracts. They have, of course, failure clauses in them if the contractor cannot supply the gas, but we have a large amount of acreage under contract, some of which has not been drilled but which I think we can reach to save the situation next summer if we have time to drill it, but it is new acreage and means exploration and all the risks involved there.

Not only a very, very large proportion of dry holes have been drilled in that area recently but those holes that are not dry went to salt water. I am not a geologist, but that sand, the Oriskany sand, has proved very difficult and there is evidently water there. That is only one of the difficulties that producers in that territory are finding and having.

I mentioned a while ago that Ft. Wayne probably had natural gas a good many years ago. That was before the depletion of the Indiana field. There were a great many cities and towns in Indiana that were served by local gas. That field, as you remember, was completely depleted and went out of business I should say around the first 15 years of this century. It was at one time a very large field and supplied those cities there in Indiana. I don't know if that field supplied through two 12-inch pipelines, or pipelines of about that dimension, natural gas to the city of Chicago for a number of years. I know that during the war we bought a lot of pipe from the southern part of Indiana which was no longer in use and we moved it to West Virginia. We bought it from other people; we did not dig up those lines, so I don't know.

This morning on redirect you asked me concerning the new issues of securities on which we have been working before the Securities and Exchange Commission and I stated what the earnings times interest on the present indebtedness is. I have made some calculations going to the earnings times interest that will result from that refinancing if it goes through as planned. Using the same estimated figure that I have used this morning for the interest charges on the proposed refunding issue

amounting to $3,900,000, in 1937 that interest would
1861 have been earned 2.7 times on the consolidated basis; in 1938, 2.36 times on a consolidated basis; and in the 12 months ended November, 1939, 2.7 times on a consolidated basis.

For the year 1937 it would have been earned 4.3 times on a corporate basis; in the year 1938, 3.65 times on a corporate basis. I have not available the corporate figures for the 12 months ended November 30, 1939. These calculations are made in haste and I would like to have the privilege of having them checked from an arithmetical standpoint. I am doubtful of my arithmetical summations.

If we were confronted with the refinancing of a natural gas transmission and production company you ask whether preferred stock would have any place in the new security set-up. Personally, I am of the opinion that preferred stock is not a proper type of security for a natural gas company that has a large proportion or a substantial proportion of production. Again expressing a personal opinion, I have even gone so far in the past as to say that bonds, except under very advantageous conditions for the industry, were not a proper form of security. That is exemplified by the fact that in the Columbia system we do not put either bonds or preferred stock against our producing gas properties. With bond issues when you have very heavy sinking funds and the bonds run a very short time, such as our serial issues, it may be possible, but I do not think it is good financing, and I certainly do not think preferred stocks for a natural gas producing company are good financing.

You ask what about a pipeline which is operated in connection with the production activities. Each company is a case in itself. As a generality, I would not like to put preferred stocks on a pipeline either.

I am familiar with what is known as an open end mortgage indenture. An open end mortgage provision permits the issuance of additional bonds upon bringing under the terms of the mortgage additional properties. Yes, I know of restrictions that we have found in this open end mortgage provision with reference to natural gas producing and transmission properties, but it goes further than that. In, I should say, carefully drawn natural gas bonds or bond issues, the indenture usually

provides that additional producing properties shall not be bondable, that is, that you cannot buy additional producing properties, and usually the appurtenance of that property, gathering lines and so forth—and bond it for the new money.

In a good many mortgages, where the bankers or the drawers of the mortgage believe that there is a chance of that money going into the gas business, they will exclude producing properties, and in some instances transmission properties. Of course, with producing properties I include gathering lines. They either do it positively or negatively; in other words, they either describe the property that is bondable and omit that type of property from the description, or in some instances they have a specific clause saying that you cannot include gas producing property, gathering lines, and so forth.

1862 That character of restriction is placed in many of these mortgages because the drawers of the mortgage do not consider that natural gas producing property is properly bondable or falls within the security. It is too risky. And where they include in the restriction the transmission of property that reflects the same attitude. It reflects in reality the fear of complete depletion and the loss of value of the transmission property thereby.

Questions by the Examiner.

That applies to the case of the producing and transmission company as well as the so-called integrated company. In any company, Mr. Examiner, when you make a loan, that is, get out a bond issue on the property as it exists today, which is open ended, it is common to put a provision in that you can purchase new property and bond it to, say, 60 per cent or 66⅔ per cent. With natural gas companies it is lower, 50 per cent, but exclude from such bonded property producing properties. In other words, when a company goes and buys new acreage they must do it with their own money; they cannot borrow money for that purpose.

Recross Examination Interposed by Mr. Booth.

That means that they cannot borrow money under that issue for the purpose of buying the property included in the restrictive provision.

Recross Examination Interposed by Mr. Slaff.

It is true that sometimes they have already borrowed money under the bond issue on property which includes producing property. If you will look over the natural gas mortgages you will notice some,—I know some with which I have been connected in the past,—where the producing property is excluded entirely. There are two reasons for that. One is the lack of security and the other is the physical difficulty of including it.

The bonds of the Texoma Company are secured only by their producing properties, it is true; but they are held only by their own stockholders. It is not a public issue.

Questions by the Examiner.

My observation would apply to a mortgage bond issue of a producing company. Any careful drawer of a mortgage would, I think, put that provision in. There are those that have not had it and there are many natural gas bonds in default.

The point there, Mr. Examiner, trying to explain it,—supposing you have a company with property, including natural gas producing properties, of $1,000,000 and a provision in your indenture that you can bond future property at 50 per cent. Now, the company goes out and buys $500,000 worth of producing property and bonds it to 50 per cent. The issue is increased from $500,000 to $750,000, but the only added value is $500,000 of producing property, which may be quickly depleted, as for example the New York properties that I was discussing this morning.

1863 *Recross Examination Interposed by Mr. Booth.*

The fear of the lack of reliance of investors on values that have been placed on gas acreage may be a factor entering into these restrictions, Mr. Booth. The real factor is the unfortunate past history of these companies. A great many natural gas bond issues have been in trouble; and in the minds of investors that trouble arises chiefly from exhaustion of the fields. I think it is true that they do not have the utmost confidence in the

value that is frequently placed by engineers and others upon gas acreage because nobody, no engineer, no body of men, can say exactly how much gas there is in a given place and everybody knows that.

Questions by the Examiner.

When I said the unfortunate past history of these companies I meant natural gas companies. I was not referring to defendants. I should have said that I meant the companies in the natural gas industry as a whole.

Redirect Examination by Mr. Morgan Resumed.

The restriction at page 9090 of the record contained in the Panhandle Eastern mortgage reads:

"The term 'fixed property additions' will not include among other things (1) the first $4,000,000 in cost to the company and/or one or more qualified subsidiaries, of fixed property additions purchased, constructed, or otherwise acquired by the company or a qualified subsidiary subsequent to March 1, 1937, or (2) any gas production property, viz gas acreage, gas wells, gas or gas oil leaseholds and other works and properties used in or useful for the production of natural gas."

The purpose of including that is to prevent the company in the future from buying with money borrowed under this indenture producing property, thus increasing the proportion of producing property to the whole, and in the opinion of the underwriters, I presume, and certainly in my opinion, reducing or hurting the security of the issue by including more producing property. (Objection by counsel for Illinois Commerce Commission overruled.)

Question by the Examiner.

You ask if we have such a provision in the mortgage indenture of the subsidiaries of Columbia Gas & Electric Corporation. We have no gas companies that are mortgaged. We do not mortgage our gas companies. I think there is one gas distributing company that has a small remaining issue but we did not put it on.

Redirect Examination by Mr. Morgan Resumed.

I have read Mr. Kleinman's statement on page 8038 of the record to the effect that a risk in business arises out of a decision which must be made by management and which, when made, will affect the subsequent profits realized by the business. I do not consider that a risk arises out of a decision of management. Risk is a possible future event which may be adverse to a business. It has nothing to do with a decision of the management. I think I have read all of Mr. Kleinman's testimony, and any answers, predicated on such testimony, which I may make are in light of my memory of his testimony.

1864 I have read Mr. Kleinman's further testimony as follows:

"In a discussion of risks in business, it is necessary, in my opinion, to distinguish between the continuous actions of conditions surrounding an industry and the continuous risking of money by the companies in the industry. The first set of factors in general determines whether the industry will be profitable as a whole. The second set of factors determines the relative prosperity of the companies within an industry. The risks arising out of the continuing commitment of money in a business are much more important than the risks arising out of the conditions surrounding an industry. The latter are slower and can be met over a period of years. The former are immediate and cannot be escaped. They can only be turned into a profit or loss. The risks surrounding an industry slowly affect the profitableness of the investment in the fixed assets, that is, the plant, the business itself; the other factors affect the profit and loss for a given period, and its cash and credit standing."

If I understand those observations by Mr. Kleinman I am not in accord with them. They are really difficult to understand. I will give an example by going to another industry. If you were in the airplane transportation business, what that testimony means to me is that the risk in your business is not that a plane will fall and kill some passengers and that you will be sued, but that you are investing your money for a long term. I could not agree with that. The risk in the airplane business is that a plane will fall and you will kill some passengers and be sued. That is the principal risk.

By the same token, go to the natural gas business. I think that among the immediate risks that we are running is, for instance, an explosion on the line, a failure of service, the exhaustion unexpectedly of the gas territory. Of course, time plays a part in that.

As I see it the type of risk which I have illustrated as applied to the natural gas industry is not a matter that is affected by the decisions of the management. From the standpoint of the investor he is most concerned with the risks that are of daily occurrence in the business and constant to the business, but I should qualify that answer, of course, by saying that the first thing that an investor would look at would be the management today to ascertain whether it is a good management. Bad management is the worst kind of a day-to-day risk. Having satisfied himself that the management is good the risk that an investor worries himself about is the risk that goes with the business, as in the gas business, exhaustion, explosion, landslides, failure of service.

At page 8041 Mr. Kleinman testified:

"Only public utilities and those few manufacturers whose raw materials and products are so specialized that there is no competitive market, escape this risk. The two companies we are considering have a very small percentage of capital in inventories, and the fluctuation in price is too small not to permit the recoupment of full cost through operations."

1865 I do not agree with Mr. Kleinman that defendants are without this risk of inventories. The time element and the rapidity of the turn are important, in the first place, from an inventory risk standpoint. That is exemplified by, for instance, a banker who purchases his inventory and turns it within hours, and he is satisfied with a very low mark-up, that is, the difference between the cost price and the selling price. As against that you take a furniture dealer. A furniture dealer, I think, ordinarily expects to turn his inventory about once a year, and if you have ever bought furniture, we all know that the general mark-up is about 100 per cent, in partial compensation to him for the long term risk of a year. A dealer in precious stones, a retail jeweler, is apt to carry his precious stone inventory a long time, and correspondingly marks up that inventory substantially; sometimes 150 or 200 per cent represents the difference between the cost price and the sales price. There are other departments in a jeweler's

catalogue of goods that have the same type of large mark-up and long carry.

The natural gas company, this company or any other producing company, when it makes a contract with a purchaser, a city, it has to show that it has got an adequate supply of gas to fulfill that contract, and that is its inventory when it has a 5 or 10 or 15 year carry depending upon the contract.

Mr. Kleinman is right when he says that there may not be the rapid price fluctuation that there could be in diamonds or perhaps even in furniture, but on the other hand there is another risk, and that is that those inventories you can put somewhere and keep, whereas the gas inventory is in the ground and can get away from you. Somebody else can get it. Gas does not always stay; it migrates. So that while the inventory risk is different in industry and in the natural gas business, there is to my way of thinking a distinct inventory risk in the natural gas business.

You ask which is the greater risk in degree, to have 25 per cent of the total investment tied up in an inventory in the nature of an underground gas reserve in a field where there are hundreds if not thousands of others producing from the same formations and which must be provided with a view of supplying the requirements of a gas pipeline over a period of 15 or 20 years, or to have 25 per cent of the total assets tied up in an inventory of furniture or jewelry or automobiles manufactured and ready to be placed on the market.

It would seem to me, though it is hard to compare risks, but it would seem to me that the risk in the gas business would be greater, and not only because of the time element. There is one other very important element there. The furniture man or the man with the physical inventory can dispose of it and get rid of it at distress prices, but the gas man with his inventory underground could not even get it out of there fast enough if he should be distressed, admitting all the time that distress prices are not as apt to hit the gas man as they are the ordinary industry. But his inventory is locked in and he cannot get at it. He cannot save himself.

1866 If a man who had accumulated an inventory of manufactured commodities or goods, whether it be jewelry or dry goods or other type of merchandise, is subject to an era of high prices he can take advantage of the

much higher price; but the man with the natural gas inventory is held down by regulation to the rate that is fixed. The rate is not regulated by contract as it was prior to regulation in the natural gas pipeline business.

At page 8041 Mr. Kleinman testified concerning another type of risk, as follows:

"* * * arises out of the labor situation. Whenever a manufacturer contracts to deliver his products at some future date at today's prices he must face the risk inherent in the labor situation. It must be kept in mind that in manufacturing industries the element of wages is a much more important part of sales value than it is in the utility industry and particularly in the case of the two companies." And "Further, their workmen are not collected in one locality, a condition which removes to a very great extent the risk of strikes and other labor disturbances. The principal substitute of gas, coal, is an example of the labor risk; natural gas has no substantial risk in this respect."

I am not wholly in accord with Mr. Kleinman's testimony. I think there are two very important things to consider there. It is true that generally speaking in the natural gas industry the men are trained to stay on the job, as is true in all public utility industries. The morale of the industry is to keep the service going and exists to a greater extent than in an industrial concern, I think.

I heartily disagree with the statement that because the men are isolated there is less labor risk. In our own experience we find where we have a compressor station with a hundred men in it, or 25 men, they are much easier to organize. The job is done much faster and you are under a much greater risk, because those 100 men can tie your whole system up. It is not like a big industrial plant where if a hundred men went out, the plant could still run. But I think defendants have perhaps 10 compressor stations. I don't know about all of them, but I can think of one, I believe, with 100 to 150 men in it that could stop the whole operation, and it is much easier to organize 150 men than it is 2,500 or 3,000. And I might say one further thing, that we have in our own experience found that sabotage in labor difficulties is far more dangerous in the natural gas business than it is in any industrial operation that I can think of at the moment. I suppose there are some.

Another risk which Mr. Kleinman discusses is the risk arising out of the overhead expense connected with the business, that is, the expense of operation other than pro-

ductive wages and consumed materials. On this point he testified:

"To a certain extent these expenses go on even if a factory is shut down completely; to a greater extent these expenses accumulate, if the business is operating but at an unprofitable capacity. In the first place, the cubic foot sales of the Pipeline Company do not measure its revenues • • •

"Even if the Pipeline Company sold not one cubic foot of gas, it would collect a demand charge from its prin-
1867 cipal customer, The Chicago District Pipeline Company, sufficient to pay all of its expenses including its present interest. Any business that has its complete overhead paid for regardless of business conditions need not worry about risk. This one factor removes the Pipeline Companies from the plane of ordinary industry into that of a guaranteed industry."

Without agreeing or disagreeing with everything he says, there are certainly some things I do not agree with. I do agree with him in the general premise that the natural gas production and transmission business has a lesser risk of overhead. There is not as great a proportion of the continuing overhead; I agree with that.

I am familiar with that demand charge that the Chicago District Pipeline Company has obligated itself to pay for the privilege of calling on defendants for as much gas in any day as it has taken in any day. I do not consider that a guaranty. I think you move right there into probably the next subject of the credit risk; and while I believe that the credit risk of this company is different than the credit risk of an industrial concern, I think it still exists. In fact, I know it exists because it has suffered a credit loss.

I testified in the direct that, I think it was in 1934 or 1935, the Illinois Commission issued an order forbidding the ultimate consuming companies, that is the Peoples Gas Light & Coke Company, and so forth, from including in their operating charges more than a certain price for the gas that they purchased. Those companies then could not pay the Chicago District Pipeline Company for that gas in excess of that price, and the Chicago District Pipeline Company could not pay these companies the contract price, which is obviously to me a credit risk, and I think the figures are all in the record. My recollection is that this company suffered a loss of over 1¼ million dollars on that credit risk.

Now, there is the additional credit risk that these con-

tracts are for a long term, and while the credit of the Peoples Gas Light and Coke Company and the other customers of the Chicago District Pipeline is excellent today, it is difficult to judge what it will be in 10 or 12 or 15 years hence, and I would prefer personally to have a more diversified risk. I mean a risk scattered among more people. I would rather have a million people owe me small bills than one person owing me as much as a million, no matter how good the one person.

Recross Examination Interposed by Mr. Booth.

I will be glad to accept your correction of the first part of my statement that in effect the Illinois Commerce Commission refused to approve the contract between Chicago District Pipeline Company and Peoples Gas Light and Coke Company which in turn was based upon payments by Chicago District Pipeline Company to the Natural Gas Pipeline Company. The net result is the same. The Chicago District Pipeline Company did not have the money to pay for the gas and that is what a credit risk is. This was testified to before and I am sure it is in the record and entirely corroborates my point. I did not want to exaggerate it. This arose through a Commission action and created a situation where the buyer was unable to pay.

1868 *Redirect Examination by Mr. Morgan (Resumed).*

I understand these companies wrote off a loss in excess of a million and a quarter dollars.

Mr. Kleinman also testified that "Another type of risk which the pipeline company does not face arises out of competition between rival concerns for the same market for the same product." Any natural gas company selling gas at wholesale or retail or any other way faces a very serious competitive risk from other fuels.

In industrial operations many industrial companies which are using gas for heating purposes even maintain oil connections and oil equipment, because many of these natural gas industrial contracts are on an interruptible basis. It is very easy for them when from a price standpoint it is advantageous to use oil, to switch right over, at a loss to the natural gas company.

From the standpoint of the use of gas in what we call the commercial contracts, small manufacturing, in recent years particularly, the use of gas for heat treating has been very largely replaced, or I would like to qualify that, has been replaced in many instances by electricity in small furnaces. An example is in your dentist's office. Your dentist 10 years ago used gas for heat treating. Today he uses electricity. That is not for his instruments for which he puts in a little gas flame, it is for his furnace in his laboratory.

Another example that you see all over now is in vulcanizing tires in the service stations. There is a little electric disc that you just put on the top, and it vulcanizes the patch on. Formerly that was sometimes done with a blow torch, or if gas was readily available, with gas.

The same is true of a great many of those small uses, which is competition and is a risk of the gas business.

Finally, there has been a great deal of talk in the industry about the loss of cooking load to electricity, and I have already testified as to the decline in the Columbia system of the domestic use of gas, and I think other witnesses in this case have testified to the same thing in connection with the Chicago companies. A good deal of that arises through the use apparently of electricity for cooking purely on a style basis, where there is no competition in cost, but the woman who has a gas stove sees her neighbor and friend, Mrs. Jones, with an electric stove, and she wants one to keep up with Mrs. Jones. So style losses are not confined to the millinery and the ladies ready-to-wear departments of business in general.

The next risk that Mr. Kleinman discusses, beginning on page 8045, is the risk arising out of the varying demands for a product, in which he says:

"This type of risk must not be confused with the demand for a particular manufacturer's product which I just discussed. In general, the risk of varying demand for a general product cannot be overcome by any manufacturer.

For example, when the demand for steel falls off, a 1869 manufacturer may obtain increased sales at the expense of his competitors but he nevertheless has been facing the risk inherent in change in demand. The experience of the Natural Gas Company has shown the pressure of this type of risk, but it takes a microscopic examination to find its effect in the profit and loss account. Its sales to industry during 1938 fell off substantially from the

peak in 1937 but the effect on profits was hardly noticeable and could be determined only with a very detailed study."

I think I have already testified that we estimate for the Columbia system that the drop in domestic use between 1929 and 1938 per customer has cost us about $5,000,000 in net for the system as a whole. I don't want to be facetious but I don't need anything to see that. That was a drop from about 78,000 cubic feet per customer per annum to 58,000 cubic feet per customer per annum in the residential load.

In the industrial load, I think I testified on the direct, and there is testimony in this case to show, that fluctuations in the industrial load follow very closely the curve of industrial activity for the country as a whole, and all you have to consider is the wide fluctuation in the steel business. Steel mills shut down, and with a big steel mill, some of which use as much gas as a city, shut down that load is gone. You don't get any revenue from it.

Exhibit 136 shows that as between the years 1937 and 1938 the gross revenues declined from $15,552,607.50 in 1937 to $14,441,349.76 in 1938, or a difference of something more than $1,100,000 as between those two years; and the net earnings from operations as between those years declined from $10,763,067.39 in 1937 to $9,884,745.28 in 1938, or a difference of nearly $900,000.00. I would not regard a decline of substantially $900,000.00 out of a total of $10,763,000 in net earnings from operations as between one year and the following year as one requiring a microscopic examination to find its effect on the profit and loss.

We would consider that very important and it is particularly important because this is an industry with a very large amount of capital invested in relation to its earnings; therefore, when you get that much drop in earnings it is more important than it is in an industry where the amount of capital is not as great in proportion to the gross earnings or to the net earnings.

It appears that the gross sales in 1937 were 74,476,893 MCF and that in the following year they had declined to 68,759,039 MCF, which is about 9 per cent, and that is about the same percent reduction as the reduction in the net revenues from operations.

Those three sets of figures, the decline in the net from operations, the decline in the gross, and the decline in the sales on the volume basis, indicate that that fall in revenue was attributable directly to varying demand.

The varying demand for natural gas as between the years and as between portions of the same year is regarded by the natural gas industry and by those investing their money in that industry as a real and substantial risk. One of the great difficulties of the natural gas business is to main-
1870 tain the supply during the winter months when you have tremendous demands on your system, and to be able to live during the summer months when your demands shrink very low. A month-to-month curve of the volume of business of the Columbia system shows the steepest hills and valleys in demand, and that is a risk in the business. There is a constant effort of the gas companies to increase the summer load and level out the winter load to a reasonable extent. So you have two types of shifts there,—inter-season shifts, and inter-year or inter-period shifts, and it does not take any explanation to know what the difference in the temperature do to a company. We, in our system, figure that 1 degree temperature changes the average domestic customer's use approximately 6 feet. Now, if you multiply that by a million that is 6,000 MCF which at 50 cents is $3,000; in other words, a degree's change in temperature for the system can change your daily earnings $3,000. I think my arithmetic is right on that.

Recross Examination Interposed by Mr. Booth.

Of course, it could increase it as well as decrease it.

Redirect Examination by Mr. Morgan (Resumed).

You have a limitation by the capacity of your lines and you have a certain temperature limitation. It only gets so cold. Many winters are warm but very few of them are colder than normal. It is perfectly proper to say that with weather as cold as this last week we were having great difficulty in supplying our demand with the extensive system we have. Two weeks before we did not know what to do with the gas. That is a risk of the business.

By my observation that the winters get warmer but not colder than normal I meant that there is a limit as to how cold a winter could be on the down side; but if you have a winter with average temperatures of 65 degrees at this latitude, which sometimes occur, you sell very little gas for house heating or for other heating purposes; and the average temperature is sometimes higher, but it is unheard of

to have a winter that would average 5 or 10 degrees below zero for three or four months. We had just such a winter as I first spoke of in 1932. That was a very warm year.

Recross Examination Interposed by Mr. Booth.

I have the exact figures for the year 1936. (Examining papers.) The month of February, 1936, Mr. Booth, in the territory served by the Columbia System, was 10 degrees below normal winter temperatures—the coldest month that we have recorded back to 1927. The next coldest month was 7 degrees below normal, and there are only two of those. But there are many instances of months that were 6 and 7 and 8 and 9, 10, 11 and 12 degrees above normal.

Redirect Examination by Mr. Morgan (Resumed).

As a matter of fact appliances which utilize natural gas in the home or establishments requiring furnace fuel are limited in their intake capacity. If they turn them on full
blast on an exceptionally cold day and that is not
1871 enough there is nothing to do but go to bed. They cannot increase the gas intake. That helps too to this extent. They will burn their ovens and leave them open and turn everything on that they have for heating; but even that won't make up for the comparatively long periods of warm weather, apparently. This varying demand becomes a very important factor with the industrial load as I think was brought out both on my direct and redirect examination.

Still another risk concerning which Mr. Kleinman testified as appears on page 8047 is the risk due to technological changes; about which he said:

"Risk due to technological changes which face the two companies. The type of risk which arises out of technological changes has several aspects. In most lines of industry there is a need for expending substantial sums of money in research on the products to be sold. In our case the product, natural gas, needs no such research expense and its sales cannot be affected by the research expense of any competitor which results in an improvement in the quality of its gas."

I do not think Mr. Kleinman's testimony covers the technological risk or hazard that confronts the natural gas business. I would agree with Mr. Kleinman that the nat-

ural gas business certainly does not spend as much money on research as, let us say, general business; there is no question about that. I am not saying at this moment whether that is a wise and far-sighted policy or not. The technological risk of the natural gas business is the risk already spoken of this afternoon, of the development of other heat processing, particularly. I spoke of the vulcanizing of tires and the dentist's furnace. It is true in all small shops where they use small heat treatments. Electricity has replaced gas with the technical improvement of the electric furnace. Just after I spoke of that a moment ago it occurred to me that there is a domestic coal stove being sold now called the Agfa stove, a self-contained stove with practically complete combustion. The initial cost of that stove is very high. The operating cost is extremely low, and the makers say there is no radiation from it. Everything is cooked within the stove. You can put your hands on it while it operates. I can see how that stove might give great competition to gas cooking.

The same thing is true of the newer electric stoves which have little radiation so that the person cooking on the stove does not suffer from the heat as much as over the older type of stoves. The gas industry has made some advance there, but not as much as the electric industry, or certainly as much as this new Agfa stove.

The point is that it is not the technological improvements in the gas industry alone that affects the overall demand for gas. Technological improvements on the outside affect that demand also, although I agree with Mr. Kleinman that the cost of technological improvements in the gas industry has not been as great as in other industries in general. The risk of losing customers or losing volume to the customers that we have is not confined to the technological sit-
1872 uation in the gas industry alone, but it is affected by technological improvements in the appliances of the electric, coal burning and oil burning industries, and in all heat treating industries.

I do not agree with Mr. Kleinman that the effect of change in utilization appliances of competing fuels would be small in amount and slow. That is what I am talking about.

1873 At page 9592 Mr. Kleinman testified in substance that the witnesses who testified for defendants on the subject of rate of return did not mention as elements or factors entering into the judgments that they reached on rate

of return any risks as to inventories or overhead or labor disturbances. He then added in substance that in his opinion the weakness of their testimony was that when you are appraising risk you cannot pick out those three risks or six risks or ten risks as present in the natural gas industry without discussing them relative to other industries to be used as the standard for arriving at a conclusion of rate of return, and without taking into consideration all of the risks of all kinds of business.

In arriving at the conclusion to which I testified on direct examination, I did not use as my standard the risks and earnings of unregulated industries. I used it for purposes of orientation and to demonstrate to my own satisfaction the competitive demand for capital and the conditions under which capital was found. Had I followed that course that you suggest or that Mr. Kleinman suggests, I think I would have made direct comparisons with industrial or other companies. Now, I did not do that, and of course we had for example before us an excellent comparison, because if I embraced that theory, I would say that as completely a comparable risk as you could get to a natural gas pipeline would be, let us say, a gasoline pipeline. There is a gasoline pipeline that serves in the same general territory that these companies serve. It extends from the Panhandle of Texas or southwestern Kansas to Minneapolis, with a branch off to Chicago. That is the Great Lakes Pipeline Company. The rate of return on that company was testified to by Mr. Dow, Fayette B. Dow, before the Monopoly Committee just prior to the time that I appeared for the direct testimony here. I did not consider that it gave as fair a comparison or as broad a picture to make a direct comparison there.

(The following testimony was stricken by the Examiner on motion of Commission Counsel over objection of Counsel for the Company: "In that particular instance the Company transports gasoline and transports it as a carrier for a tariff, that is, it is not using a contract to market at the end of a line but its rate of return is calculated in my exhibit for the year 1938 as approximately 33%. For 1937 it was approximately 30%. Those figures are taken from the Temporary National Economic Committee's bulletin beginning September 26, 1939, and on that subject on page 539 there is a graph that shows the rate of return on the major gasoline pipelines, on the independent crude pipelines, on all companies reporting to the I. C. C., and on the

major crude pipelines. The gasoline pipelines essentially started in business in 1929 and in that year and until the end of 1930 they lost money. Since then the rate on all of these companies has increased until at the end of 1938 it was 30% according to this graph. I intentionally did not make a direct comparison like that or other direct comparisons of risk to other companies even though this particular company is, of course, regulated."

I did say that if an investor had as many dollars as there were companies listed on the Chicago Stock Exchange, as shown in my exhibit, and invested a dollar in each industry, or the same number of dollars all in defendants' undertaking, that there would be less risk in the first investment because of the diversity factor.

Columbia Gas and Electric Corporation owns subsidiaries having both electric and gas properties. It is a holding company but owns the securities of other companies which own distribution properties, as well as companies owning pipelines and production properties. In my direct testimony I made the point, as I remember it, in substance that these particular pipeline companies involved in this inquiry face an additional risk and are at an additional disadvantage through the circumstance that they do not own any distribution companies and do not control the sales policies in the distribution of their natural gas. Columbia has had to do with selling at wholesale and distributing its own gas. It has been the experience of our company that there is an advantage from the standpoint of building up the load in owning the distribution company which controls the distribution policy. There is such an advantage particularly where you are selling the gas to a former manufactured gas company. The policies involved in the sale of manufactured gas and natural gas are different, and it is difficult for the selling personnel of the manufactured gas company to embrace, understand, and solve the problems involved in the sale of natural gas.

1874 Practically speaking, the manufacturing company makes gas and pumps it to the holders, and from the holders it is pumped out to the customers. There is always a limit to the amount of gas that can be handled, and the average manufactured gas man is afraid of peaks, high peaks. For natural gas, on the other hand, the holder is an enormous pipeline. There is a great capacity there, and in many natural gas companies, most of our own, we are accustomed to operating at low load factors, and con-

sequently we have not the same fear of peaks. I mentioned in the direct, the house heating business. The house heating business is a peak load business, and it has been our experience that it is hard to get the personnel, the sales personnel in the manufactured gas companies, to push house heating business with the enthusiasm and the results that the sales personnel in the natural gas business does. In fact, in some instances we offer particular covenants in the contracts to encourage the sale of house heating.

Approximately 8 per cent of the domestic customers of the Columbia system have house heating installations. Those figures apply throughout the system as an average. It varies widely in different places. For example, in Charleston, West Virginia, house heating saturation is practically 100 per cent. It will move downward in other places where there is very little house heating.

The last figure I saw for the Chicago distributing company was about 12,000 house heating customers out of 850,000. That was approximately 1½ per cent. I have some notes here. In Detroit, natural gas was introduced there in 1935, the estimated house heating saturation is 6 per cent. That is approximately 27,000 house heating customers out of 440,000. In the Columbia system, we estimate that our saturation is about 8 per cent, but last year of all the new homes built on the system, that were centrally house heated, approximately 33⅓ per cent were heated with gas. That is an estimate from the sales department. In Chicago, the last figures I saw were 12,700 house heating installations, a saturation of about 1.52 per cent.

I believe there is a difference in our system in the percentage of saturation, as I have used the term here, in those cities where we control the distribution sales policies and those in which we sell at wholesale. It is very difficult to get the figures. I could not prove it. We are convinced that that is the case. The best example we have is where we have purchased properties. As soon as we have put our own force to sell house heating on those properties, there is a big increase in that load.

At page 9605 Mr. Kleinman, referring to defendants, made the statement in substance that as compared to ordinary business, they have a very substantial lack of risk and that capital generally recognizes that investment in utilities is a safer investment than it is in business generally. He then added: "I mean all utilities, even those that have gone bad. Electric utilities are the highest. Telephone,

water companies, are better than some telephones, and so forth, but that whole field is superior." I do not agree with that conclusion. That is not the attitude of the investing public.

The first thing my mind jumps to is the street railways.

There was an enormous loss to investors in them. I
1875 cannot help thinking of the natural gas business as a whole and the losses that have resulted from that in the distant past. We spoke of the Indiana field this morning. This is a matter of history—the losses there. The losses resulting from financing in 1928 and 1929 through failure of the fields, through failure to obtain markets, and the investors who I see, and I see a great many professional investors and bankers, consider the naural gas business a very risky business, as I do.

I remember one company, a producing gas company, that in 1928 was financed for $3,600,000 first mortgage bonds, and I think $800,000 debentures behind them. That property was located in Kentucky. The gas was drawn out from under it, and the same property that they financed for over $4,000,000, sold at auction within the year for $156,000. The investors just cannot forget that kind of loss.

The experience that Mr. Cabot had over here in the Tioga field is a perfect example. Three years ago he was willing to spend $1,700,000 for a transmission line; and he has now had to advise the customers on that line not to expect any gas through it after July this year. Cabot has been doing pretty well in the gas business. He is, I am afraid, losing a good deal of money in the New York field just now.

The Cabot organization used to be in West Virginia. I think Mr. Cabot has gotten out of the carbon black business. I cannot speak for his other interests outside of the Appalachian field. He is the same Cabot who was connected with the Cabot Carbon Company, which operated down in the Panhandle, but I am not familiar with that operation.

1876 CHARLES W. KNAPP, JR., a witness for the Federal Power Commission, recalled for further cross-examination, testified:

(January 8, 1940.)

Cross-Examination by Mr. Morgan Resumed.

I have Exhibits 197 and 198. In connection with my direct testimony the Commission offered Exhibit 185. It was developed in cross-examination that I had not shown the comparable yields on transactions in common stock securities but had confined my figures largely to bond yields. That is partly true. Subsequently I prepared Exhibits 197 and 198 to meet that point. Exhibit 185 does contain data on yields from purchases of preferred stock of electric operating utility companies for the period from 1935 through 1939. It was only with reference to common stocks that you inquired as to why we have not supplied similar information.

In preparing the additional exhibits I did prepare some figures having to do with the yields on electric operating utility preferred stocks. You ask why I picked out electric operating utility preferred stocks rather than the stocks of other classes of utilities for the purpose of developing these figures. First of all I did so because it followed a consistent pattern with our studies that we have presented in great detail in connection with electric utility bond issues. My explanation of why I believed the electric utility yields and earnings were justified in this study is the same as that advanced by me when you asked why I selected electric utility bonds in getting up Exhibit 185.

Exhibit 197 contains 21 issues of preferred stocks. The number at the left is an identification number which is or will be found in the footnote in a study made by the Federal Communications Commission entitled "The Problem of the Rate of Return in Public Utility Regulation," and in the tables and schedules included therein, the items were designated by number; and it was thought it would facilitate the tracing through of these items if those numbers were retained. In their study they included additional companies. I don't know the exact number, as a matter of fact. I do not think it was more than two times this number. It may have been slightly more, but, as indi-

cated also in the footnotes here, I selected only those issues for which dividend and prior requirements were earned in excess of 1½ times in 1938.

You ask if these are not the highest rated stocks that are included in that study by the source. These preferred stocks were not described as such; but as I gather the intent of your question, they would be those of the highest quality in the study. These preferred stocks are recognized as among the highest quality of preferred stocks that are being bought and sold by the public, and they were selected for that reason.

Of the 21 companies listed in Exhibit 197, some of them are electric and gas. I have not made any particular study to determine how many of them are in the natural gas business. It may well be that some of these companies handle distribution of natural gas, either in its original state or mixed with manufactured gas, but I would not be prepared to state which ones or how many of them. I did not think it was necessary to make a detailed study of each one of these companies for the purposes
1877 of this exhibit. I think that the companies here listed are shown as electric operating utilities. I do not think it would require any extensive study to verify that point. It was necessary to determine for my purposes, of course, whether they should be classified as electric operating utilities, and I did so determine before making this schedule, but I do not retain a recollection of all of the details involved, which are contained in the sources to which I referred.

I made no detailed study to determine the source of the electric current that each of those companies distributes as to whether it is manufactured or generated by the distributing company or purchased from other sources. could perhaps go through here and indicate companies which largely generate their own power and others which purchase; but I did not make any detailed study and do not have a summary of any such details with me. You ask if I do not undertake to keep myself informed concerning details of that kind as far as concerns the electric companies whose statistics pass over my desk. I don't know as I can answer that categorically. As I said a moment ago, I made no specific study relating to these companies for the purpose of determining the exact quantity of power produced, but I would not care to make any generalization based on that. You ask if I tried to find out

those who were generating their own electricity or were using steam power or utilizing hydroelectric facilities. I have a knowledge of some of these companies, and the names of some of them indicate the nature of the source of power.

The principal reason for selecting these companies was that they were electric operating utilities. I don't believe I was asked if I selected the companies whose securities were of the highest quality. I was asked if these companies were of that character, and I thing I answered in the affirmative.

Questions by the Examiner.

The fact that dividends and prior requirements were earned in excess of 1½ times in 1938 would indicate that these preferred stocks were of a high quality; but I did not mean to imply that I had selected these companies in any other way than by reference to times that preferred dividends and prior requirements were earned. The 1.5 times requirements earned is getting pretty close to a lower limit. In other words, if preferred dividends and prior requirements are earned less than one time, the preferred dividends would not be earned.

You ask why I selected 1.5. I felt that that was a reasonable starting point. Unity is what an investor would ordinarily demand for investment purposes. He might take something that was not earning its dividends for speculative reasons, but unit is the lowest point at which the investor would be willing to consider, I imagine, a preferred stock as an investment, and as you approach —as you rise above unity and approach two and three times earning power, the quality of the preferred stock increases.

Cross-Examination by Mr. Morgan Resumed.

You state that you understood me to say several minutes ago that I had picked these because they were of the highest quality of preferred stock. I picked these because the preferred dividends and prior requirements were earned in excess of 1½ times, and that in itself indicated
that they were above the level so far as quality was
1878 concerned. The quality was better than those whose earnings were covered less than 1½ times. I don't re-

member that I said that I selected them because they were of the highest quality, but, as I explained, these would be of the highest quality. I just don't understand what the distinction in terms is that is involved. I am just trying to make a frank statement; I just don't want to do anything other than that.

You ask why I have a fewer number of companies in Exhibit 198 than I do in Exhibit 197. The reason for that is simply explained by the holding company dominant in the electric utility industry, and if a holding company owns in excess of 95 per cent of the common stock, as is true in the great majority of instances, it does not leave you a very large selection from which to determine any price rates, because you do not have the market price which you need in computing that ratio. In Exhibit 198 I listed all of the stocks listed in Schedule 26 of the Federal Communications Commission study from which I took them, provided that at least 5 per cent of the issue was in the hands of the public. I excluded the gas companies from that exhibit for the same reason that I did from Exhibits 185 and 197. I confined the common stocks to electric utilities for the same reasons I have stated in connection with my testimony concerning Exhibits 185 and 197.

The Pacific Gas & Electric Company possibly has some natural gas distribution. I don't know of any other that would have. You ask if I noticed anything out of the ordinary about the earnings price ratio of that particular company. It has a very high earnings price ratio. The earnings price ratio for the Pacific Gas & Electric, based on the market prices for the week ended November 17, 1939, is 8.53 per cent. That is based on earnings per share for the twelve months ended June 30, 1939. There is another issue, Southern California Edison Company, Limited, for which the earnings price ratio on a similar basis, except that earnings are for twelve months ended September 30, is 9.11.

You ask if I have any way of accounting for that high earnings price ratio in the case of Southern California Edison Company, Limited. I believe so. I believe that it is generally—if these earnings price ratios are related statistically to percentage of gross income available for the common stock as shown on the same exhibit, it will be found that as the percentage of gross income available

for common stock increases, the earnings price ratio tends to decrease, and you will note in the case of the Pacific Gas & Electric Company that for the year ended June 30, the percentage of gross income available for the common stock was 40.95. In the case of the Southern California Edison Company, the corresponding percentage was 39.72. And those two issues reflect the highest earnings price ratios on this exhibit, and at the same time reflect the lowest percentage of gross income available for the common stock. I would not care to make a statement as to whether there is municipal competition or a threat of it in the city where Southern California Edison Company, Limited, owns its distribution facilities. I may have read something about it, but I would not be willing to offer my recollection as any testimony on it.

You ask if these companies listed in Exhibit 198 are not also companies whose securities are of the very highest quality in the electric field. I would not care to make a commitment on that question. That had nothing to do in this case with the selection. I included in this exhibit all issues which I could find in this study that 1879 was referred to by the Federal Communications Commission, which were issues of electric operating utilities and common stock issues of which at least 5 per cent of the issue was held by the public. I made no attempt to classify them as to quality except insofar as the column to the extreme right calling for the percentage of gross income available for common stock is an indication of quality.

Questions by the Examiner.

This is an exclusive list of companies. There are not very many electric operating utility common stocks on the market. I have listed those here which were held by the public to the extent of 5 per cent of the outstanding issues. Your question as to whether by and large that list represents the cream of the electric operating utility crop, so to speak, I do not think can be fairly answered because I have shown nothing here with respect to companies which may be equally as good or better than these companies but which are wholly owned by holding companies.

Cross-Examination by Mr. Morgan Resumed.

You ask if I can mention one that will qualify as being better than this group of companies here, even though its stock is owned by a holding company. It is difficult to make any generalization about such things as better or equal to or the same as, in these cases. There are always points of comparison. Or there may be a combination of them, but there are companies whose bonds carry high ratings which are among those companies which are wholly-owned by holding companies. I can give you the names of a few of those. Among public utilities whose bonds carry Aaa rating are the Brooklyn Edison, which is a subsidiary of the Consolidated Edison Company of New York. Yes, the Consolidated Edison Company of New York is in the list. The Duquesne Light Company, which I believe is a subsidiary of the Philadelphia Company, is also among those whose bonds carry Aaa ratings.

In the same classification would be New York Edison, which I believe is a subsidiary of the Consolidated Edison of New York, and the Philadelphia Company, the affiliate of which I do not recall. I am referring to my Exhibit 185, Schedule 1, page 8. Moody's Manual does not rate common stocks. I could get Moody's ratings on their bonds, of course.

You ask if I am saying by my last answer that some of these companies whose names I read from Exhibit 185 are in my judgment, better companies than those listed in Exhibit 198. I said a moment ago that I did not think it was possible to generalize about what is better, equal to, or worse than. I could have included in Exhibit 198 from the same source a number of gas distributing utilities. I believe there were gas operating utilities included therein. I excluded them because I desired to confine my studies to electric operating utilities.

In Exhibit 185, Schedule 23, I had some figures concerning average weekly earnings indexes, and in Schedule 22 I had factory employment and payroll indexes. You ask if I made any further study of that subject to see whether or not information concerning wage scales is available. I have not made any such study as that. There has since come to my attention some data which is published in the State of Illinois on employment and payrolls, but I am sorry that I have not had the opportunity to examine that thoroughly.

1880. Yes, I have access to a publication known as the Survey of Current Business, issued by the United States Department of Commerce. It gives information on employment and payrolls, yes, sir. I am familiar with the publication in general. I have not prepared any figures from that publication showing the prevailing wage scales, particularly in the field of construction, over that period 1929 to 1939, inclusive, the same period covered by my Schedule 23, Exhibit 185. If they are in the source concerning which you have just asked me, I will be glad to know it, but I have not noticed them.

You have handed me the 1938 supplement of the publication "Survey of Current Business, United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington." You asked me to take that and state into the record from that source the figures for common and skilled labor under the caption "Construction Wages" beginning with the year 1929 through the succeeding years. These are the monthly averages of wages per hour. They are not the monthly wages but the monthly averages of hourly wages. The caption says "Dollars per Hour." The information appears to be divided into two categories, common labor and skilled labor. For the year 1929 the figures for common labor in dollars per hour are .547; 1930, .561; 1931, .50; 1932, .427; 1933, .456; 1934, .532; 1935, .528; 1936, .564; 1937, .645. Skilled labor—for the year 1929, $1.36; 1930, $1.38; 1931, $1.27; 1932, $1.02; 1933, $1.01; 1934, $1.10; 1935, $1.09; 1936, $1.15; 1937, $1.32.

I have read those figures but, without having an opportunity to examine into the basis of their preparation or to make any study at all, I would not care to ascribe any significance to them. You ask if I am willing to accept the figures coming from that source as authentic figures. I don't know, not having studied those figures, just what industries are involved, what kind of construction labor, and so forth. The weekly wage scales here on Schedule 23 of Exhibit 185 are for the United States, the wages of weekly earnings in ninety manufacturing industries. Those for the State of Illinois, according to my recollection, are a cross-section of Illinois industry representing somewhere in the neighborhood of 60 per cent for factory wage earners and factory payrolls.

You have asked me to turn to page 177 and see if that

discloses the source of that information and the character of the construction that is included in the figures. I will read what appears there, if I may.

"Compiled by the Engineering News Record, and represents the hourly wages of both common and skilled labor in the construction industry as of the first of each month. Both the skilled and the common rates are the arithmetical average of wages actually paid in 20 cities, as follows,—New York, Boston, Philadelphia, Baltimore, Atlanta, Birmingham, Cleveland, Cincinnati, Detroit, Chicago, St. Louis, Kansas City, Dallas, Minneapolis, Denver, Seattle, San Francisco, Los Angeles, Pittsburgh, and New Orleans. These data are compiled from monthly reports that correspondents in 20 cities submit as to wage rates. Union wages actually paid are used except where non-union jobs predominate. In some instances, it has been necessary to average the rates for union and non-union where both exist.

"The skilled rates are the average of the three principal trades, carpenters, bricklayers, and structural iron workers in heavy construction."

It goes on to say where comparable data prior to these dates can be found.

1881 Now, you have asked me after reading that, to consider its importance, and I would say that I see no mention made with particular reference to the natural gas pipeline business, that it says "heavy construction, iron workers," but it combines bricklayers, carpenters, and iron workers. Whether I would have used that had I had it is another question. Pipeline companies in their various construction activities may have employed all of these classes of construction workers, but I am not familiar with pipeline construction. I am not an engineer.

You have handed me the February, 1939, supplement of the same work, and on page 69 of that publication I find the monthly figures continuing the figures which I just read into the record on down to October, 1939. These figures are as follows: For common labor during the year 1938, for the month of January, .680; February .675; March .675; April .677; May .673; June .677; July .677; August .677; September .677; October .682; November .682; December .682.

For skilled labor during the same period, January $1.39; February $1.39; March $1.40; April $1.40; May $1.40; June $1.42; and for the remainder of the year $1.43.

For 1939 for common labor: January .682; February and March .680; April .683; May .682; June and July .684; August, September, and October .685.

For skilled labor in 1939: January and February $1.43; and for the remainder of the period to and including October, $1.44.

The monthly average shown by the publication from which I have read is .500 for common labor for the year 1931. The monthly average for the year 1939 is about .685, an approximate 37 per cent increase since 1931. For skilled labor the monthly average for 1931 was $1.27 and for 1939 is approximately 17 cents higher, an increase of approximately 13 per cent.

1882 E. V. KESINGER, a witness for defendants, called for redirect examination, testified:

(January 9, 1940.)

Redirect Examination by Mr. Morgan.

As I stated heretofore, I am general superintendent of the two pipelines involved in this proceeding. I have occupied that position since January 1, 1932, when operations were commenced. Prior to that time I was chief engineer in charge of the engineering work connected with the construction of the pipeline properties from the beginning of construction to completion.

In the cross-examination of Mr. Delafield on October 28, 1939, he was asked concerning unusual developments in the gas industry in the last five years. At page 6712 of the record he stated in substance that there had been constructed within the last few years two high pressure lines, which he briefly described there in his testimony. In his redirect testimony here yesterday he corrected his former testimony at that point by stating that he was mistaken in thinking there were two high pressure lines, adding that there was only one.

I have made an investigation as to the capacity and operating pressures and stresses of the line to which he referred to in that testimony. The smaller diameter line to which he referred is operated by the Hope Natural Gas Company. It states at their Cromwell station near Charleston, West Virginia, and runs northeast for 95

miles. The south 65 miles of that line is made up of 12¾ inch outside diameter pipe, commonly known as O. D. pipe, of which the wall thickness is ⅜ of an inch. The north 30 miles of the line is made up of the same kind of pipe, with the exception that the wall thickness is 5/16 of an inch. There is only one of those high pressure lines. In speaking of the smaller of the two lines I was referring to his original testimony. He said he thought there was one line 18 inches in diameter and a smaller line also. Yesterday he said he was mistaken about the larger line.

The line concerning which I have obtained the information is the same line that was referred to in a magazine article which counsel for the Commission read into the record at pages 6192 and 6193 by T. R. Weymouth. That line was designed to operate at a pressure of 1300 pounds on the south end of the line at the Cromwell station, and a pressure of 1000 pounds at the point where the 5/16 inch wall pipe starts, 65 miles north. The 1300 pounds on the 12¾ inch O. D. seamless pipe with a wall of ⅜ inch would result in a fibre stress of 22,000 pounds per square inch. The 1,000 pounds on the 5/16 inch wall pipe would result in a fibre stress of 20,400 pounds per square inch.

When the line was completed it was tested to a pressure of 1287 pounds. This produced a fibre stress in the ⅜ wall pipe of 21,880 pounds. The line has been operated at pressures ranging from 700 to 850 pounds. The 850 pounds produces a fibre stress of 14,450 pounds on the ⅜ wall pipe.

Comparing these pressures and stresses with the operating pressures and stresses at which the lines of
1883 defendants are operated, we limit the maximum operating pressure on the 24-inch pipeline of defendants to 720 pounds. It must be remembered that the 24-inch pipe on the system of these two companies is of two different wall thicknesses. The seamless pipe is 5/16 inch wall, and the electric welded pipe is 11/32 inch wall. Consequently, the 720 pounds maximum operating pressure produces a fibre stress of 27,650 pounds in the 5/16 inch wall pipe, and 25,130 pounds per square inch in the 11/32 inch wall pipe. The 27,650 pounds on the seamless pipe compares with the operating stress of 14,450 pounds on the 12¾ inch line about which I first testified a few moments ago.

Another comparison that might be made is that if and

when the Hope Natural 12¾ inch line is operated at a pressure of 1300 pounds, for which it was designed, the fibre stresses will compare as 22,000 pounds on the Hope system to 27,500 pounds on defendants' system. You ask me to explain how a line operating at a pressure of 1300 pounds would have a lower fibre stress than a line operating at 720 pounds. The pressure alone is not a measure of fibre stress resulting from that pressure. It is also necessary to know the diameter of the pipe and the wall thickness. The Hope Natural Gas line is 12¾ O. D., and the wall thickness is ¾ of an inch. The pipe on defendants' system is 24 inches O. D. and 5/16 inch wall. The fibre stress varies directly with the pressure, other factors remaining constant. The fibre stress also varies directly with the diameter, the other factors being constant; and it varies inversely as the wall thickness increases or decreases, other factors remaining constant.

There is a formula by which we can take any given piece of pipe where we know its diameter and its wall thickness and determine the fibre stress on that piece of pipe at any assumed pressure. The commonly accepted formula for this calculation is known as Barlow's formula. It is expressed in this manner: Fibre stress in pounds per square inch is equal to the product of the pressure in pounds per square inch, multiplied by the diameter in inches, divided by two times the wall thickness in inches. That formula produces the figures showing the stresses to which I have testified. The constant is two times the wall thickness. The figure 2 is the constant. Expressed in symbols, the formula is F is equal to PD over 2-T, the F being fibre stress in pounds per square inch, the P being the pressure in pounds per square inch, the D being the diameter in inches, and T being the wall thickness in inches.

The term "high pressure" has been used in this record to refer to the practice employed on the system of the Texoma and Natural Gas Pipeline Company of operating their pipeline system at pressures in the neighborhood of 700 pounds as compared to the prevailing practice in the natural gas industry prior to 1930 of operating gas pipeline systems at pressures in the neighborhood of 320 pounds.

The term "high stress" has been used to refer to the employment of fibre stresses in the neighborhood of 25,000 pounds on the system of Texoma and the Natural Gas

Pipeline Company as compared to the prevailing practice in the natural gas industry prior to 1930 of operating pipeline systems at fibre stresses ranging from 11,000 to 15,000 pounds per square inch.

The term "high pressure" may not be necessarily significant, when used by itself, since it is also necessary to know the diameter and the wall thickness of the pipe if it is desired to know the fibre stress. The term "high
1884 fibre stress" is more significant particularly when you are referring to the degree to which the steel is being utilized in its normal operation.

Mr. Floyd C. Brown testified concerning an extensive research study to determine whether or not it was feasible to build a gas pipeline from the Panhandle of Texas to the Chicago area. He testified that their original investigations of this subject convinced them that the project was not feasible and that he recommended against proceeding at the close of the first series of studies. The use of the high pressure at which these lines are now operated is not the only factor which makes the operation of defendants' pipeline feasible. There were a number of factors involved, the high pressure being one of them. It should be remembered that from 1926 forward, when the engineers were working on this project trying to determine how to design it, and how to make it feasible, that they were confronted with the use of lapweld pipe. The maximum fibre stress that could be used in design work where this pipe was to be employed was 15,000 pounds per square inch. Also the steel in this pipe has a yielding point of 25,000 pounds per square inch, and an ultimate strength of 45,000 pounds per square inch.

The development of a higher grade of pipe of more uniform wall thickness and more uniform physical properties by two manufacturers brought about a change in some of the basic factors. The pipe that became available was manufactured from a steel that had a yield point of 35,000 pounds per square inch, and had an ultimate strength of 60,000 pounds per square inch. The uniformity of the physical dimensions and the physical properties were such as to lead us to conclude that it would be safe to utilize this steel at fibre stresses in excess of those that had been employed, consequently the design employed in this system utilized fibre stresses in the neighborhood of 25,000 pounds per square inch. This term is indicative of the degree of utilization of the factors employed in the pipe.

The higher pressure and the higher pipe stress were very important points or important factors, but those were not the only factors involved that resulted in the building of this project. The other factors, I believe however, have been fully and clearly covered in the record.

1885 W. C. GILMAN, a witness for defendants, called for redirect examination, testified:

(January 9, 1940)

Redirect Examination by Mr. Morgan.

I am the same W. C. Gilman who has testified in this case before. I am the same Gilman whose testimony is discussed in the brief of counsel for the Commission under the title "Heads We Win, Tails You Lose." In the opening paragraph of counsel's brief reference is made to the circumstance that I was formerly an employee of the government in the capacity of chief or director of the Public Utilities Division of the Securities and Exchange Commission. You ask how I happened to obtain that position. I was asked to come to Washington to help in the establishment of the Public Utilities Division of the S. E. C. soon after the passage of the Public Utility Holding Company Act of 1935. At the time I was asked to come down here I was employed by the Equitable Life Assurance Society. I had a job. I did not agree when I came down here that I would spend the rest of my life in that job.

The S. E. C. has rules concerning the limitations that former employees of that department are under when they leave the employment of the government. I have observed those rules in every way.

Questions by the Examiner.

The rule is generally to the effect that any former employee of the S. E. C. who leaves the employment of the Commission shall not engage in any practice before the Commission for a client with respect to any matter which was pending before the S. E. C. while he was with that body.

Redirect Examination by Mr. Morgan Resumed.

In the course of my cross-examination I was asked concerning my testimony in a case before the New York Public Service Commission involving some proceeding between that Commission and the Brooklyn Union Gas Company. In the brief filed by counsel for the Commission there is a quotation from my testimony in the Brooklyn Union Gas case appearing at page 7243 and subsequent pages of the record, given by me in response to questions by Mr. Hertzoff, who is referred to in the brief as assistant to the Corporation Counsel of the City of New York. The questions and answers quoted are:

"Q. Would you say that an investment in a natural gas company is a better class than an artificial gas company like the Brooklyn Union or a manufactured gas company?

"A. I hate to generalize.

"Q. Oh, you have generalized all along.

"A. I would say that—yes, that in the past few years, experience in what has gone on has demonstrated that investors are more willing to buy the securities of natural gas companies than they are of the artificial gas companies."

1886 . You ask what securities I was talking about in my answer to those questions. At page 7245 of this record, after that testimony was read by Mr. Slaff, I stated that "there have been in recent years many million dollars worth of natural gas pipeline bonds sold, particularly to institutional investors. While I was at the Equitable, we bought many million dollars of such bonds of short maturity with heavy sinking funds. At that same time, we were not buying the bonds of artificial gas companies. Natural gas pipeline bonds were special types of securities and fitted a special position in the fortfolio of the investing institution. And that is what I meant by investors being willing to buy the bonds of natural gas companies."

I thought that my explanation at that time in the record right after that testimony had completely explained my position in the matter. In the redirect, no consideration whatever was given to any further explanation of it.

I do not see how anybody, and I did not think that anybody could misunderstand my position, but Mr. Slaff's brief certainly does.

Questions by the Trial Examiner.

You ask in what respect I think the brief misinterprets my position. The brief implies that in the Brooklyn Union case I took the position that manufactured gas bonds or manufactured gas securities were riskier than natural gas securities and in this case the reverse. I do not think that in any reading of the testimony and my explanation any one could properly take that position.

Redirect Examination by Mr. Morgan Resumed.

I did not testify in the Brooklyn Union case at any time or in any place that the risks in the artificial gas business were greater than the risks in the natural gas business. In this record I testified that there was a greater volume of transactions in the bonds of the natural gas industry than those of the artificial gas companies. I have not at any time testified to the contrary of that. I have said in a number of places in this record that in recent years there have been many more bonds of natural gas companies sold than of artificial gas companies. They are bonds of peculiar character or special character, short maturities and heavy sinking funds, and from that point of view have been relatively attractive to institutional buyers who want to put their money to work and who want to get it back and see it coming back over a short period of years, at which time they hope to be able to reinvest it at higher interest rates than the present level.

My position is that by reason of the character of the natural gas bonds which have been offered and the character of the artificial gas bonds which have been available, the investing public has seen fit to put more of its money into the natural gas bonds of the character that were issued than they have in the type of artificial gas bonds which were available to them. This is true for the principal reason that the natural gas companies during the past five years or so have offered a particularly attractive type of security to investors at this particular time, relatively short maturities and heavy sinking funds. At the time I was discussing the risks of the natural gas business as compared with the risks of the artificial gas business in
1887 my direct testimony in this case, I made that distinction that there is a difference in the short term view-

point and the long term viewpoint in the risks of the two types of companies.

Also in the same brief of counsel for the Commission appears a quotation not from this record but from the brief of someone described by counsel as "the fair and temperate Mr. Mulligan." That brief was filed in the Brooklyn Transit case, which has been mentioned here. That was a tax case in the State of New York, involving taxes for the year 1916 of the Brooklyn Rapid Transit Company and other companies in that street railway and elevated railway system. In the computation of those taxes, called franchise taxes, the formula which had been established over a period of years required the establishment of rate of return. My testimony delivered in 1938 was with respect to a proper rate of return for the Brooklyn Rapid Transit Company and system companies in the year 1916. The testimony was delivered before a Special Master of the Supreme Court of the State of New York.

In connection with the study and investigation that I made, which was a rather difficult problem because the testimony was delivered in 1938 and was supposed to go to rate of return proper in 1916, was a study of historical cost of capital to the B. R. T. I considered it of some importance in forming my judgment as to what was a proper rate of return, and I followed the method suggested and out ned by the staff of the Federal Communications Commission in their study of rate of return, to which reference has been made a number of times in this case.

A substantial section of that study of the staff of the Federal Communications Commission is given over to a development of a method of computing the historical cost of capital. I followed that method exactly. Naturally, there were different figures to be inserted in the formula, and to the best of my ability and to the best of my judgment, I obtained the proper figures on the B. R. T. system and inserted them in that formula, which the staff of the F. C. C. had developed, and put that computation of the historical cost of capital in exhibit form, and it was inserted in the record in the case.

I had never read Mr. Mulligan's brief until it was called to my attention from Mr. Slaff's brief. However, as soon as I saw that he had prepared a brief and made some comment about my method, I obtained it and studied his criticism. I think that his remarks with respect to my methods followed are financially illiterate, and that is the best way

I can characterize Mr. Mulligan's comments with respect to the methods that I followed. I stand back of those methods, and I defy him to meet them.

Questions by the Trial Examiner.

The Brooklyn Rapid Transit case was mentioned in the cross-examination very briefly. I think I stated when I was being asked as to my qualifications that I had testified in the matter of the rate of return in connection with that case. I was not cross-examined on that case. There was no extract of anything from the record in the Brooklyn Rapid Transit case, if my memory as to what I was asked on cross-examination is correct.

1888 *Redirect Examination by Mr. Morgan Resumed.*

At the top of page 132 of the brief by counsel for the Commission appear the first few words of an answer of mine as follows: "I think it best to be honest." I have examined the page of the record at which those words appear. I made no reference to this statement in my redirect examination. I did not think it necessary to mention it. You ask just what I meant by those words and how the matter came up. Well, I think originally that I should have said, "I think it is best to be fair," but I was very disturbed on the witness stand, and I said, "I think it is best to be honest." I really meant that those words should be directed to Mr. Staff, because I thought that he was implying and getting into the record the implication that I had no responsibility with reference to the investment of large sums of money, whereas I very definitely recollected that I testified to having spent a substantial number of years with the Equitable Life Assurance Society, and having made recommendations to the Finance Committee, through the Treasurer of the Society, with reference to the purchase of some hundreds of millions of dollars of securities. I thought it was clear in my direct testimony where I said, I am sure, a number of times, that I made investigations of utility companies and prepared recommendations for the Committee, and that the Committee acted on those recommendations.

I never tried, in my opinion, to imply that I was the head of the Equitable Life Assurance Society, and that I alone had the responsibility with reference to several hundreds

of millions of dollars. Obviously that would be silly. This question that he was directing to me at page 7371 was: "You did not have any final responsibility for the investment of those large sums of money or any sums of money outside of your own personal moneys?" The use of the word "final" there I thought was unfair, an unfair word to put in there to characterize the work that I had done, and that was the reason why I said, "I think it is best to be honest." I am sorry now—at least I think I should have said, "I think it is best to be fair," and I was directing those words to Mr. Slaff.

I did not imply at any place in this record that I had the final responsibility for investing those moneys by the Equitable. I think it is very proper to have on the record the fact that I did not have any final responsibility. I did not want to leave that impression, but the point is that I at that time had the feeling that Mr. Slaff, consciously or unconsciously, was trying to leave the impression that I had misrepresented my position with reference to what I did at the Equitable, and therefore I directed those words to him, "I think it is best to be honest." As I have just said, I think I would more clearly have conveyed what I was trying to convey if I had said to him: "I think it is best to be fair in your questions, Mr. Slaff."

I think this cross-examination to which I have just been referring was sometime after my cross-examination about my position with the Central Hudson Company. As I remember it, the reference to my position with the latter company was very early in my cross-examination.

I was present and heard the testimony of the witness, Mr. Fred Kleinman, who testified for complainant in this case. I have read his testimony since I heard him testify. On page 8038 of the record Mr. Kleinman was asked cer-
1889 tain questions to which he answered in substance that: "A risk in business arises out of a decision which must be made by a management and which, when made, will affect the subsequent profits realized by the business." He added that it is necessary to distinguish between continuous actions of conditions surrounding an industry and the continuous risking of money by the companies in the industry. Continuing, he said that the risks arising out of the continuing commitment of money in a business are much more important than the risks arising out of the conditions surrounding an industry.

I am not in accord with the conclusion that the so-called

internal risks, as Mr. Kleinman classified them, are much more important. I think the risks surrounding any industry are of great importance from an investor's point of view. The risks due to changes in the habits of people, changes in the arts, outside developments, are completely beyond the power of any management to control and are of extreme importance, and are so considered by investors.

You ask into which of the two classifications would fall the risks involved in the uncertainty of the life of the source of supply. I don't know whether we can actually put that in one slot. Certainly one phase of the question of supply can be placed on the external side, and that is what other people will do who are taking gas from that field down there. That question is completely beyond the power of the management of defendants. No decision of theirs can affect it except as it is affected by their own operations. If there are great developments or great increases in the demands for carbon black, and if the carbon black manufacturers take a lot more gas for carbon black, or if chemical industries use natural gas, or if there are increased takes by other lines, and things of that kind, those are factors which will affect the operations of this company and affect its supply. Those things are beyond the power of the management to control.

Then there is the risk of salt water intrusion. That is certainly a risk that the management has no control of. I suppose salt water intrusion might result or be increased depending upon the takes of gas by other takers, but the presence of salt water in the field and what is going to happen as the result of it is not a matter that can be controlled by the management, except in the manner in which they drill and operate their own wells.

I did not use the earnings and the risks of industrial companies as a basis for my judgment as to a proper rate of return for this company. I think it is clear in my direct testimony that I made a comparison of risks between pipeline companies and electric companies and artificial gas companies, and the basis of forming my judgment was
1890 by comparing the risks of electric and artificial gas distribution companies, and so forth with the risks of the pipeline industry.

I did introduce in an exhibit a PWA project study under the Securities and Exchange Commission which showed net earnings before income taxes of a substantial number of American industries. At the time I introduced it, there

was substantial discussion and argument about the use of it, and I stated at that time that that study was among other studies in my exhibit, and was useful for orientation purposes and to indicate what capital invested in industrial establishments had been earning over a period of time, but I did not from those figures arrive at the rate of return to which I testified.

In other words, my approach was to try as best I could to relate the risks and the necessary rate of return for defendants to the regulated concerns which I sought to distinguish or compare in the course of my testimony. I approached it from that side and not from the unregulated side. When you speak of regulated concerns, I relied primarily on concerns in the electric and gas field.

I testified that one of the risks confronting these pipelines and the business in general is the risk of exhaustion of supply. Mr. Kleinman testified on a phase of that subject at page 9440 of the record and said in substance that he thought any investor faced with a decision of the Federal Power Commission, founded on a complete study of the facts, company evidence and Commission evidence, would be more inclined to look upon the possibility that that field would last beyond the life found by the Commission than he would to look at the risk that the field would not last as long as the Federal Power Commission said it would. I do not believe that the attitude of an investor would be as Mr. Kleinman says it would be. I do not believe that an investor, having before him the decision of the Federal Power Commission with reference to the life of the supply, is going to say to himself, "No, it will last longer." I just do not believe that.

If we assume that the Federal Power Commission has heard the evidence on both sides and has done its best in the exercise of its judgment to determine how long that field is going to last in the light of the facts that can be developed as of this time, and it determines that it will last 16 years from the first of this month; and if we assume that these companies desired to refinance their capital investment or the value of their property partly by bond issue, in my judgment it would not be possible for defendants to sell at the prevailing bond rates, such as have been offered in evidence here in the course of these proceedings, an issue of bonds that would extend to the end of that full 16-year period. Investors buying the bonds would require a margin of protection. They would not be willing to take

the risk of buying bonds which matured at the completion of the life of the supply. That would not imply that there was anything wrong with the finding of the Commission; but it simply means that the prospective bondholders would want a margin of protection. There is no surety. Even though this life of the supply is determined after a careful investigation and after a consideration of all the evidence in the world that it is possible to get, there is still the risk that the supply won't last as long as that life is determined to be.

Anything that is in the ground and cannot be seen is very difficult to measure exactly. The history of our coun-
1891 try is full of the stories of the mistakes which people have made where the basis of their judgment was estimates with reference to mining enterprises. If we could assume for a moment that they could ascertain exactly what is there, still they could not determine how long it would last or how long it would be economically available. That is true because there is the factor which is still unknown and that is how fast it is going to be taken out of the field by this company and by the other companies who are presently taking gas from the field or who in the future may take gas from the field.

You ask if in addition to the uncertainty that it cannot be determined how much gas will be taken out by all of those taking it out, there is also the uncertainty that formation developments might put a large portion of the wells out of business, or economic conditions might cause the stopping of production at a time short of the time they would stop if conditions continued as they are now. The investment banker and ultimate investor would take all those things into consideration, every single possibility that might result in an unfavorable condition with respect to the company whose securities he would or would not purchase. The bondholder in order to get the margin of protection that he wants, would first of all require that the amount of bonds be modest or relatively modest in proportion to his evaluation of the assets; and secondly, he would demand that the maturity of the bonds be in advance of the shortest competent estimate as to the life of the supply, and probably a 25 per cent margin below that. If the estimated life be 16 years, based on what investors have required in the past, the investor would probably fix the maturity of the bonds at 12 years. Under those circumstances the risk that the field would not last on through the remain-

ing four years after the maturity of the bonds would fall on the equity security holders. As a matter of fact, the bondholder would place as a condition upon the advance of the money on the bonds at the prevailing rates that that risk, as far as he could protect himself against it through that safety factor, would shift to the equity holders. The bondholder gets a small hire for his money, and he is not going to take the risks of the other security holders in the enterprise, who are entitled to and would demand a higher return on the money that they have put in for the riskiest part of the enterprise.

A person buying the equity security knows that he is taking the risk. If he buys the common stock of a company that has contracted to pay off a substantial part of the debt over a period of 10 or 12 years, he is the residual security holder, and his ultimate profit is dependent on the final results, the over-all results of the enterprise. In the meantime, the bondholder has assumedly received his interest and has been paid off.

Recross Examination Interposed by Mr. Slaff.

Yes, the equity holder gets all the benefit if the field lasts beyond the estimated life, and he gets all the grief if it lasts below.

Redirect Examination by Mr. Morgan Resumed.

What Mr. Kleinman has characterized as an attractive speculation does not remove the risk.

Recross Examination Interposed by Mr. Slaff.

You ask if what I have testified to today was not all substantially covered in my direct testimony and if I have added any new element. I have no new point of view, Mr. Slaff. I do not think in my direct testimony I testified in quite the A, B, C, language which I think I have used just now. I don't think there is anything new in what I
1892 have said. I think it is just a different manner of explanation. I am not changing any position I took in connection with my testimony on direct or cross-examination.

Redirect Examination by Mr. Morgan Resumed.

At page 9460 Mr. Kleinman was asked if he knew anything about the Tioga field in New York. He replied that he knew gas wells were brought in a few years ago, about 1935, and for a while there was some rather rampant speculation in the field. I have some knowledge of that field. I have recently made some study of the gas situation in the Tioga field. I have read the testimony in the case of the New York State Natural Gas Corporation, a company which operates out of that field and which is engaged in a proceeding with the New York Public Service Commission and the Federal Power Commission at the present time with respect to rates. I have been in the field and examined some of the wells. I have been there while drilling operations were going on, studied the report of geologists of the State of Pennsylvania and the State of New York, and have talked with the head officials of a number of companies who operate out of that field.

The gas supply in that field is failing rapidly, according to the testimony of the geologists. An officer of the New York State Natural Gas Corporation testified less than a year ago that they had a supply available to them through their own production and purchase at that time of around 55 billion feet. Some 9 month later or less, he testified that they would have to revise their estimates due to a large number of dry holes and salt water and that his best present estimate was 13 billion feet.

Questions by the Examiner.

In both cases the witness to whom I have just referred was testifying in a rate case before the Federal Power Commission. It is a well known fact that the gas supply, at least as presently known, in that field has depleted very rapidly, and it has reached a point where pipelines running out of the field have cut off their interruptible customers to the extent that they can be cut off immediately, and have given notice to other industrial customers where notice was required. News and knowledge of that kind travels very rapidly. It is known in the investment world.

Recross Examination Interposed by Mr. Slaff.

I cannot have any basis of measurement in determining how that has affected the securities of a particular company like the Northern Natural Gas Company. These securities, as you know, are held by institutions, and it is impossible to get any market appraisal. I think refunding securities of that company this past summer were sold to six very large institutions at very favorable prices. To try to give you as good an answer as I can, I don't know that the failure of the Tioga field would have any direct effect at this time on the price of the securities of companies such as the Northern Natural, but I do take the point of view that failures of this kind, failures of supply in the natural gas industry are bound eventually to have an influence in the minds of people who are putting their money at stake.

1893 Yes, I testified that as the years have gone by recently natural gas securities have become more attractive to investors. That is right as to natural gas bonds. I cannot say the same thing, and won't say the same thing, with reference to common stocks, because I do not think that is the case. Certainly natural gas bonds, with the terms which the natural gas companies have been willing to put in them, short maturities and heavy sinking funds, have been attractive to the institutional investor.

Recross Examination Interposed by Mr. Booth.

No, I would not say that an investment in the equity securities of the defendants would be an unattractive investment. I think that a study of the historical financial picture of the common stock of defendants reveals that it is a sound investment. From 1936 on they have received very substantial dividends.

Redirect Examination by Mr. Morgan Resumed.

In my opinion that does not relieve the risks that confront these particular investments at this time.

At page 9605 of the record it appears that in answer to questions on cross-examination Mr. Kleinman made an observation that these companies have a sheltered position. When asked what he meant by "sheltered position,"

he answered: "I mean as compared to ordinary business that they have a very substantial lack of risk. That capital generally recognizes that investment in utilities is a safer investment than it is in business in general." He was then asked whether he meant natural gas companies or all utilities. He replied, "I mean all utilities, even those that have gone bad." That is not the attitude of the investing public as I know it and understand it. I just do not understand what Mr. Kleinman had in mind when he said that investment in industry was more risky or less desirable than in utilities which have gone bad. I do not see how anything could be worse than an investment in some of the utility companies that have gone sour, investment in the street railway business, investments in the telegraph business, investments in the steam railroad business. Millions and millions of dollars have been lost in those industries. Those are examples of utilities which have certainly in many cases gone bad.

I know of no unregulated industrial businesses or classes of business who are seeking or petitioning the legislatures or the Congress to put them under regulation. You might imply that some of this coal price regulation might be moving along that line. I do not think that any industry is asking for complete regulation. I do not think that Mr. Kleinman's statement that there is sentiment among the investing public that regulation removes the risk is a correct statement. I don't think that regulation removes risk at all.

Recross Examination Interposed by Mr. Booth.

I can't point out in the record just where Mr. Kleinman used those words. I do not know definitely that he has made that statement in those words. I said that regulation does not remove all of the risk. I do not mean to imply that it does not remove some risks. Certainly an electric company serving a community and operating under a franchise which it obtains perhaps by virtue of regulation does have freedom from competition of other electric companies in the same territory. If a natural gas pipeline company, which has built its line into a cer-
1894 tain territory, now finds that under the law no other natural gas company can, except under certain restricted circumstances, build a line into the same territory

without the consent of the regulatory body, it would find itself relieved of certain substantial risks. If no other line could come in, it would be in the position of having no competition from natural gas in that market. If no natural gas line can come in without getting a certificate of authority from a regulatory agency, that would help to improve the competitive situation and relieve to a certain extent the existing natural gas company of certain risks.

Redirect Examination by Mr. Morgan (Resumed).

You ask whether that situation would be met by the Natural Gas Act if the application for a certificate of convenience and necessity comes from one who, by reason of the discovery of a gas field closer at hand, can sell gas at a lower price than defendants can sell it. I have read the statute on that point. I don't know how anybody can be sure of his ground until the statute has been in operation for a number of years and there have been interpretations of it; but certainly the implication is in there that it is the purpose of this act to bring natural gas into communities at the cheapest possible price. From that there is the implication that if somebody discovers gas near a city which is presently being served by gas, that it is the purpose of that act to allow that natural gas to go in there at a cheaper rate. I am familiar with the language of Section 7, subdivision (c) of the Natural Gas Act, which you have just read to me, contains the language: "In passing on applications for certificates of convenience and necessity, the Commission shall give due consideration to the applicant's ability to render and maintain adequate service at rates lower than those prevailing in the territory to be served," it being the intention of Congress that natural gas shall be sold in interstate commerce for resale for ultimate public consumption, for domestic, commercial, industrial or other use, at the lowest possible reasonable rate consistent with the maintenance of adequate service in the public interest. As an investment counsellor I do not regard that as conferring any monopoly on defendants of the market they serve. I regard it as just the reverse.

I have just said that we do not know how that is going to be interpreted yet because the Act has not been in operation long, but certainly the implication in there is

that monopoly will not be maintained, and that whenever gas can be brought into a community at a cheaper rate, it will be so done.

You ask, if a gas field should be discovered in the State of Illinois, if the Federal Power Commission would have any jurisdiction over it so far as ringing gas from that field to Chicago was concerned. There have been a lot of arguments about the jurisdiction of commissions under the use of the words "interstate commerce," but I should judge that if gas were discovered within the State of Illinois, and the lines hauling gas from that field were wholly within that State, such a company would not fall within the jurisdiction of the Federal Power Commission under the Natural Gas Act. I am assuming no connections with any interstate companies.

Recross Examination Interposed by Mr. Booth.

I am not wholly familiar with the Illinois statutes which prohibit the construction of such lines by any public utility without a certificate of convenience and necessity. The general requirement of those certificates of convenience and necessity is that before transmission facilities may be built, you go to the Commission, and after a hearing
1895 and a proper showing as to the public interest being served, you obtain your certificate of convenience and necessity. It may be denied.

Questions by the Examiner.

You ask if these risks of regulation were all considered in my testimony on rate of return. I do not think they are of any substantial importance from my point of view. I stated in my direct that regulation under a new law on which there is no history entails in the minds of the investors some uncertainty. That influenced to a very minor extent my figure on rate of return. I took it into consideration, Mr. Examiner. I do not even know whether it influenced me, but I took into consideration that this company was operating under a new law and under regulation on which we have not any history, and we don't know how it is going to be interpreted, and things like that.

Recross Examination by Mr. Booth.

I have not made any determination of how much it would cost to build a competing line from the southern part of Illinois to the Chicago area. I did not in my testimony or in calculating my rate of return assume that that was any particular risk of this company. It is probably one of the things that ran through my mind, but I did not consider it as of sufficient importance to have given any special allowance for it. That is my statement today and my statement before.

I know how much it costs, generally speaking, to build natural gas lines. To build a 20-inch line or something like that would cost around $25,000 a mile for the line. It would cost $125 a horsepower, or something like that, for compressor stations if any were necessary. That would be a very rough estimate of the cost of the line.

This morning I had said in response to your questions, Mr. Booth, that I was familiar to some extent with unit costs of building gas transmission lines. To build a 20- or 24-inch line would cost in the neighborhood of $20,000 or $25,000 a mile, depending upon the factors such as right of way, steel prices, and such things; and to build compressor stations would cost from $100 to $150 per horsepower. A 400-mile line of that size would cost perhaps somewhere in the neighborhood of $10,000,000 for the bare line. You would have to have a lot of other factors to be able to make an estimate of the compressor station capacity. You would have to know the pressure at which the line was to be operated, you would have to know how much gas was to be carried through the line, and such things.

Of course, the first thing I would have to do would be to acquire a supply of natural gas. There is nothing in my testimony this morning from which it may be reasonably inferred that I had come to the conclusion that there was an adequate supply of gas in the southern part of Illinois in large enough quantities to attract the investors to build a line from there to the City of Chicago. You ask if there is any natural gas down there at all in commercial quantities. It all depends on how you define "commercial quantities." I have read some reports about oil in southern Illinois and some reports about gas, small amounts of gas, in southern Illinois and southern Indiana,

but I have made no specific investigation as to the amounts of such gas.

1896 I don't think that anybody would put up the money for a project of that kind unless they were reasonably sure that they were going to get that money back and get a return on the money. They would want a return of at least 8 per cent, I think. I haven't a feeling that there is any immediate prospect of anybody putting up any money to build a line from any natural gas reserves which I am able to state as adequate reserves to serve a market like the City of Chicago, even though they could get that market.

1897 JOHN A. COOKE, a witness for defendants, called for redirect examination, testified:

(January 9, 1940.)

(At this point the Trial Examiner announces that upon motion of Commission Counsel he orders stricken all of Mr. Delafield's answer which starts on page 10140 to through most of page 10141.)

Redirect Examination by Mr. Morgan.

I have testified before in this case that I am identified as a partner in the firm of Peat, Marwick, Mitchell and Company, a partnership. The general business or profession of that firm is professional accounting practice. I live in Evanston, but my office is in Chicago.

The principal offices of defendants are located in Chicago. I have sustained professional relations with these two pipeline companies during the past several years. We first took up professional work for them toward the end of 1933 and have continued annually since then. At the end of 1933 we made arrangements to examine the accounts from the inception of the companies up to the end of 1933. They had no previous outside auditors up to that time. We have served as an independent accounting firm. We have not worked under their direction in the performance of our duties but have simply used their records as the basis of making an examination and a report to them.

You ask me over what period my first engagement took me in their accounts. Our first work covered the accounts from the inception of the company up to the end of 1933. It extended even prior to that into the construction accounts. We made a review of the capital charges there or the accumulation of the construction costs right up to the time of the inception of the Natural Gas Pipeline Company of America, at which time all of the work done by the construction company was turned over to the Pipeline Company and to the Texoma Company.

An arbitrary date was selected to mark the termination of the construction period and the beginning of the operation period. That arbitrary date was December 31, 1931. The reason for an arbitrary date being taken was that as the construction neared completion, the company was able to pass gas through its lines in small quantities, and get some revenue, and so you had running contemporaneously there, the construction and revenue earning. For convenience, December 31, being the end of the company's fiscal year, was taken as the date as of which you should cease to consider any expenses, that is operating expenses, as a part of construction cost, and after which those expenses should be applied against revenue produced from gas sold.

Our audit disclosed that as of December 31, 1931, construction work was still going on. It was not all finished then.

You ask what we do in the performance of our duties as an outside or independent auditor when we go and audit the books of defendants. It is quite a large program, but it may be summarized as a verification of the assets and liabilities as of a certain date, and the review of the operations and transactions regarding operations in the period covered by the examination.

Our first work began after the first of Januarw, 1934, and covered the period ending December 31, 1933.
1898 We found that up to the date last mentioned nothing had been set up on the books with regard to depreciation, depletion, and retirement of capital invested in acreage. We so reported in our report on the accounts. We began in the latter part of 1933 working on the construction accounts, but the work then was left in abeyance until the 1933 accounts were closed, and we went in in 1934 and completed the work. Our first audit covered the

period ending December 31, 1933, instead of the end of 1932.

In our report to defendants early in 1934 and in our discussions with the management prior to our report we raised the questions concerning the state of the accounts as to depreciation, depletion, and retirement of capital invested in acreage. We would in any concern where it had not been taken care of; and in our report we mentioned that it had not been done. We were advised that it would be given consideration in 1934, and in that year it was ultimately. We sat in in a consulting capacity at that time, but the accounts for 1933 were closed without anything being set up in there for depreciation or depletion.

I have here a signed copy of our report of defendants in 1934 for the year 1933 and prior years. On page 10 of that report, which is dated March 23, 1934, on the Texoma Company we say:

"The original acquisition of leaseholds on acreage in gas producing territories, from the participating companies, was made on a basis of an over-all price of approximately $45.00 per acre without discrimination as to desirable or undesirable territory. It is the contention of the company that the total purchase price in all probability would have approximated the same figures had the acquisition of leaseholds been confined to such sections of the territories as were really desirable, consequently on relinquishing and reassigning leaseholds on acreage, as and when such was determined to be undesirable, in order to terminate the expense incident to the carrying of such acreage, no adjustment was made on the accounts with respect thereto. We have been informed that it is the intention of the company to fix a date as of which all such discriminatory reassignments shall be considered to have been accomplished and that thereafter all necessary abandonments or reassignments shall be accounted for by appropriate adjustment of the company's leasehold investment account. Should a date prior to December 31, 1933, be fixed for this purpose it would necessitate an adjustment of the accounts in respect of reassignments between that date and December 31, 1933, and accordingly, would affect the statements presented herewith.

"In accordance with the original policy of the company no provision has been made on the books, or in the ac-

counts submitted herewith, for depreciation of the company's physical properties or for depletion of the leaseholds and gas reserves, as it was the intention to charge operations with the current amount of the sinking fund requirements for the retirement of the bonded indebtedness, beginning in 1934 and ending in 1946. Subsequent to December 31, 1933, the question of depreciation and depletion has been reconsidered by a special committee, as a consequence of which, we are informed, the accounts are to be adjusted to reflect charges to operations based upon appropriate rates and such charges are to be applied retroactively to the commencement of operations January 1, 1932."

1899 We discussed the omission of any provision for depreciation or depletion with the management of defendants prior to making the report from which I have just read. As was stated there, the company advised us they were going to look into the matter inasmuch as we had brought it up particularly, but that they could not do so in time to have anything set up in the 1933 accounts which we were then reporting on. They stated that if any changes were made thereafter on the matter of depreciation and depletion, they would be made retroactive. Subsequently in 1934, the matter was discussed, and the 1934 accounts showed that it had been given consideration, and the method adopted was applied retroactively.

The management discussed with me their reasons for not having made any entries of that character prior to the time I was discussing the situation with them. It was the feeling of the officers that the sinking fund requirements of the bonds would take care, as far as they were concerned, of this depletion, depreciation, or whatever they liked to call it. In their minds they were thinking in terms of the sinking fund requirements under the Indenture rather than the depreciation as such of the properties.

They stated to me, or I knew from the records, that the bonds were owned by the stockholders. I talked to Mr. Floyd C. Brown about these matters. My discussions were with him on every occasion. There may have been others in at different times, but mainly and at all times I was conferring with Mr. Brown. He was speaking as general manager of the company, and when I refer to the management, I am referring to Mr. Brown. If others were there, it would include them, but my talk was with Mr.

Brown, and anything that may have been submitted to me for discussion or for information was with his knowledge and approval and with his consent or direction, as is customary.

You ask what observation Mr. Brown and the others with whom I was talking there made concerning the ultimate ownership of the earnings of defendants after the payment of operating expenses. I don't know as I could answer that as such. The whole picture was a closely held corporation. The bonds, I knew from the records, were held by the participants. Any ultimate profit or loss would accrue to them through the equity securities, which consisted of common stock. It was their picture. They were not concerned with outsiders. There were no outside stockholders, no listing requirements. It was a matter in which they could do as they pleased, and we merely reported on what they had done, but made suggestions for the consideration of other things which eventually they did give thought to.

In discussing the subject of depreciation with them I was speaking of depreciation which applies to any industry, for that matter, that has an investment in fixed assets which are used up in the course of their business. Depreciation reserve is a charge made to operations over a given period of time, which is intended to recover the amount invested in the fixed asset which is used up or worn out in that time; in other words, to recover the capital investment within the useful life of the property.

1900 As depreciation is applied, it would be the physical life of the property equipment. In discussing with the management the fact that they had not set up any reserve for depreciation, I was addressing my suggestions particularly to the depreciation of the physical property.

I did not fix the rate at which they started to set up this depreciation of the pipeline and other physical properties of the Pipeline and Texoma Companies other than leaseholds. After I brought up the matter or suggested the matter for discussion, the company officials, through the committee that looked into that matter recommended that 2½ per cent be applied to the pipeline and other certain percentages to the other physical properties. These percentages varied according to the nature of the asset, but for the natural gas main line and branch lines, the depre-

ciation rate recommended was 2½ per cent. In fixing the rate of depreciation of the lines and the fixed assets, the subject of the reserves in the Panhandle from which defendants were obtaining their gas did not enter into the discussion in any way. We discussed the matter of the depletion of the reserves about the same time. That subject came up only in connection with the discussion of depletion. We had the circumstances of the gas field and the conditions in the gas field as reported to us before us all the time we were talking about the depreciation of the physical properties. We made no examination into the gas fields at all, we merely based our opinion on the figures available from the companies' files and the figures submitted to us in the discussion of the situation.

When the committee made their recommendations, I was consulted in the matter of setting up the depreciation reserve. At that time I reviewed the rates to see if they were reasonable from an accounting standpoint. The rates with the exception of that for the pipelines were in general within the ranges which were reasonable. I had no knowledge of the pipelines and I took the liberty of consulting one of my partners as to what he thought was a reasonable rate for the pipeline. He disclosed to me that forty years was a reasonable life and I was satisfied that 2½ per cent was not out of proportion.

I was not particularly concerned with the field at the time I agreed to that 2½ per cent because I had no knowledge of the life of the field. So that there may be no misunderstanding, the gas reserve which the company had was not expected to last 40 years, but that of itself would not be a factor which would make me decide on any additional rate of depreciation if I were satisfied that the physical life of the pipes would be 40 years. I was not approving a reserve which in my judgment would return to the companies the investment in the pipeline and other physical properties within the life of the reserves of gas from which they were producing and transmitting gas at that time, because the gas reserves they had then available and acquired was but one factor. There is another factor which any business man would invoke if he had a pipeline that would last longer than his present reserves; he would endeavor to buy additional reserves if available to use in the remaining life of the pipe. So that the factor of the reserve might not determine the ultimate conclu-

sion of the operations. The available reserve might be extended if they could acquire additional acreage. Under these circumstances, I was satisfied to have it set up on the basis of physical depreciation.

Mr. Brown at that time was quite concerned with some things that were going on down in the Panhandle field about stripping which was, as I understood it, wast-
1901 ing the available gas reserves. If allowed to go on without any interruptions or without cessation, this stripping might be a very serious factor in the life of any company drawing from those fields, and one thing or another. In my consideration of the problem, I did not make any allowances for that factor of gas wastage for the reason that in determining the reserve which it was decided to use as a means of fixing the depletion rate an attempt was made to be conservative. It was below the figure of reserve which the various surveys had indicated to be there. The factor of safety was allowed in an attempt to be conservative in setting up the unit rate of depletion. The company fixed the rate at which depletion as originally set up on the books was figured. However, the rate was based on a method which I suggested, as follows:

In order to get a convenient accounting rate and a convenient method of taking care of this depletion, I tried to strip it of all frills and difficulties of recomputation. To do that, it was my thought, and I so suggested that they take some date as of which they should consider the acreage then held as available acreage for the purposes of this computation. They should then take the total cost of all of the acreage; because up to this time no change had been made on the books for the acreage surrendered. By that I meant that they should take all of the acreage as of some date as representing the total cost, which was subsequently fixed at January 1, 1933. However, the date is not as important as the fact that a date was taken. The number of acres then at that time was divided into the total cost of some $15,000,000 and it produced a figure of $65.548 per acre. That was the average cost of the acreage still retained at the date last mentioned, on the method I suggested.

Thereafter, any surrender of acreage was to be deducted from the total figure of cost at the same acreage value, $65.548.

At that time, it was contemplated that other acreage would be surrendered. It was not known how much would be surrendered. It was not my thought in recommending the setting up of the accounts on that basis that when this acreage was surrendered it was worth $65.548 per acre. That was obviously not considered at all. An average doesn't represent true value; and by any process of reasoning, that which you give away as valueless to you is obviously of less value than that which you keep, so that the very fact that it was surrendered was an indication that it was worth little or nothing, and certainly not anywhere near $65 an acres. The value would lie in what was left.

It was not intended by me that the system of accounting that we set up there would reflect the value of the retained acreage as of any given date subsequent to that time. The value at which it remained on the books would not be any indication of the value of that retained acreage.

Recross Examination Interposed by Mr. Slaff.

None of our accounts were designed to show the value as against cost. In this particular case, the original cost of $15,000,000 was set up. From then on, by the use of an average and a variation in the accounts for the surrendered acreage on that average, they ceased to have even the dollars representing the true cost of the balance of the acreage. The applying of this average as the acreage was surrendered was a convenient accounting method. We were not concerned with problems of value.

1902 *Redirect Examination by Mr. Morgan (Resumed).*

We were not concerned with the problems insofar as the accounting cost of the retained acreage was concerned. We were concerned only with the result of a method of accounting. It was my understanding at the time I recommended that method of accounting that in acquiring that acreage they considered that the acreage which turned out to be desirable would cost them the full amount that they paid for all of it. That was the understanding they put up to me in that discussion. If they had only had half of the acreage left after the weeding out process was completed, that was all that they were after originally in their acquisition—all that was useful to them. That which was not useful to them was surrendered as it was found to be useless to them.

Recross Examination Interposed by Mr. Slaff.

That information or understanding of mine was based simply on that conversation with Mr. Brown and perhaps other officers and members of the management of the company. I made no personal review of the situation because I am not competent to do that.

Redirect Examination by Mr. Morgan (Resumed).

In response to Mr. Slaff's question, I was referring to what they told me back in those days when I was setting up that system of accounting dealing with the subjects now under discussion. I was not referring to what they told me in the last month or the last week.

I did not finish the matter of the unit rate. I got to that point where I stated how the average acreage cost was determined for accounting purposes. The next stage was the matter of reserves as of the day the acreage was determined, the gas reserve figure being submitted from the company's record at that time. That was taken as the available reserves as against the available acreage, and a division was made which produced a figure averaging approximately 12,000,000 cubic feet per acre. I did not assume in arriving at that computed reserve that every acre they owned had 12,000,000 cubic feet of gas under it. That was an unknown factor. That was just an arithmetical result of dividing one figure by another, total reserve by acreage as conservatively stated. It is no indication of what each individual acre would contain, but the average was 12,000,000 cubic feet. Having fixed the 12,000,000 average, then that, divided into the total cost of the acreage, produced the rate of so much per thousand cubic feet. That rate on our recommendation was to be applied to all withdrawals of gas from the reserve by the company.

If that is carried to its conclusions, and there are no interruptions, no other factors to consider, then by the time the field is exhausted, if the reserves taken of 12,000,000 cubic feet per acre are proved to be a true and correct average, the total investment will be recovered. That was the thought that predominated in my suggesting this method. I was thinking about a convenient accounting method rather than an attempt to evaluate, if they could

be evaluated, the various acreages and the various volumes of gas in the various acres, which, as I say, if they were determined, would have involved constantly changing each unit rate of depletion, and it might vary the earnings quite considerably between years if one year the production was from a very high value acreage, and another year from a low value acreage, so the idea was one of convenience rather than a reflection of anything in the nature of value.

1903. As a result of these two entries which I have described, the retirement and the depletion would arrive ultimately at a point where the gas produced by these companies will be used up as of the time the company ceases its operations down there. That would mean that the company itself would have produced a quantity of gas which would amount to 12,000,000 times the number of acres that it owned as of January 1, 1933. If it turns out that at the subsequent developments disclose that Texoma is not taking out of these reserves all of the gas that is going out from under them but that large quantities of gas, totaling, as I remember the record, 60 per cent of the total that has gone out have been drained back to the wells and leases of other parties, this depletion reserve would not accumulate by the end of the field's life reserves sufficient to take care of the total reserves purchased by Texoma in that field in the beginning. It would be short to the extent by which these extraneous withdrawals had depleted their reserves below that conservative figure fixed for the determination of the unit rate. If as a matter of fact large quantities of gas have been drained off to other leases, that accounting entry there under the heading "depletion" does not truly reflect the amount of depletion of those leases as of this time or as of any particular time between the setting up of these reserves and the present time.

Recross Examination Interposed by Mr. Slaff.

If the reverse were true and if Texoma were draining gas away from its neighbors' acreage, the defendants would get more gas than that against which the reserves were set up.

Redirect Examination by Mr. Morgan Resumed.

The basis of setting up depletion has continued from that time down to the present date with the exception that where the company has acquired additional acreage, then insofar as the cost of that additional acreage varied from the $65,548 per acre, bringing it into their total picture varies the average per acre and the unit rate of reserve. The same principle of accounting, however, has been employed right down the line to the present date. There have never been any adjustments made to take care of the drainage to or from the reserves originally contained under the Texoma acreage as set up on the books in the beginning. In making that statement, I can only speak to the end of 1938. We have not the figures on 1939 yet.

The original schedule of depreciation set up in 1934 as above stated and adjusted back to the first of January, 1932, has not been continued from 1934 down to the present time. The pipeline rates were changed from 2½ per cent beginning January 1, 1938 to a composite rate of 4 per cent. They were adjusted at the end of 1938 back to the first of that year. There were some changes made in the depreciation rates on other properties, what they were and the amounts, I do not recall offhand. They are in the report here if it is of interest to you. I listed the changes there showing the rates to which they were changed and the previous rates. In connection with my examination of the companies' records, I was informed that the rate set up in 1938 was the result of a revision of their depreciation policy to conform with the settlement made with the Federal Income Tax authorities. The books were simply changed to meet the figures on which a compromise had been reached with the Federal Income Tax authorities. This compromise and settlement, however, affected only the Natural Gas Pipeline Company of America's depreciation rates, the Texoma's books were treated a little differently. I believe the rate of 2½ per cent 1904 continued on the Texoma (examining papers) yes, 2½ per cent was the rate applied on the Texoma books for pipelines. The other depreciable properties of Texoma were carried as they were fixed in the 1934 set up. The reason for this was that no similar compromise arrangement with the Income Tax Department has been made on behalf of Texoma, as I understand it. The company officials can answer better. That has not come up yet, inas-

much as those things only arise when they are showing taxable profit. As long as the company is showing losses, the day of settlement of depreciation and depletion and other rates of that kind is usually deferred. The Texoma of course under the terms of its Indenture is operated as a non-profit corporation. (Motion by counsel for the two commissions to strike all of the testimony of Mr. Cooke denied.)

Recross Examination by Mr. Booth.

We have been the regular auditors of defendants since the making of the audit for the three years and seven months ending December 31, 1933. We prepared the audit from which I have read here and we have prepared annual audits of the books of these companies since that time.

Yes, in our report dated March 2?, 1934, from which I read here, I pointed out and discussed the fact that the companies' books reflected no provision for depreciation or depletion. The income account and the balance sheet in the audit report also notes this fact, I believe. Yes, it is noted here that the audit is "before depreciation and depletion." I made these notations in the report purely because and only because provision for depreciation and depletion had not been made; and we thought some provision should be made and we recommended that it be considered.

Yes, at the time I made the audit in 1933 and 1934, I would normally have expected to find some provision for depreciation and depletion in any company for any year in which it owned assets which are depreciable. Yes, my method of determining depletion expense was the so-called unit method, that is for each unit of gas withdrawn during the accounting period, so much is charged to depletion expense. The number of cubic feet multiplied by the unit rate. I would expect such charges to be reflected on the books year by year as the gas was withdrawn. If I were making a re-computation now, I would take the figures that are available based on an increased knowledge gained in the intervening period of five years or so. For instance, the amount of the acreage surrendered is now different than it was then, therefore, I would have a new factor, that is not a new but a different factor from that used in the 1933 base. I would require the sum total of acreage which has been surrendered and would suggest that that

be deducted from the total original acreage. Then I would divide that present acreage into the total cost, that would give me a revised or up-to-date average value per acre, book value or cost. I don't like to use these terms because you put a different construction on them. It is the original cost of the whole field divided by the useful and available acreage. That is what I am trying to say. I would ascertain the average cost on that basis, then from the reserve point of view, the reserve would be adjusted, that is, the original reserves would be adjusted to what is considered by those who have a better knowledge of it than I have, the present total reserve in that acreage. On that basis then a unit charge could be determined that would be more accurate now than that which was determined five years back.

In other words, my objective would be to take as the base the reserves originally under the acreage now retained and deplete that original reserve down to what its present content actually is. I would have to rely on the figures given, but that would be the theory that would be applied. That which has been withdrawn would have to be considered in my total reserves to get the unit rate, and that which has been withdrawn from the reserves would be charged to operations at that unit rate and credited to the reserve for depletion.

1905.

You read from page 10 of our first audit report the following language: "it was the intention to charge operations with the current amount of the sinking fund requirements for the retirement of the bonded indebtedness beginning in 1934 and ending in 1946." You ask how this would be done. That was the companies' problem. I was not acceding to that, as you can tell from the fact that I take exception to that method and suggest depreciation and depletion; but it was Mr. Brown's thought that the charge to operations of the amount each year called for under the sinking fund would take the place of depreciation or depletion. In other words, if he could recover a figure each year which would enable him to pay off that sinking fund requirement, he would then have accomplished the purpose in his mind of a reserve for depreciation and depletion. I was not stating that as a fact, but merely the explanation, as I recall, Mr. Brown gave me at that time.

Yes, under his method, he would have accomplished what would ordinarily be accomplished by a depreciation and depletion charge, namely, the recovery and the return of

the investment. That, generally speaking, is the purpose of it. You ask if that is what I understood his original purpose to be in charging operations with the current amount of the sinking fund requirements. I would prefer that Mr. Brown answer that, as he is the only person who can say what his intentions were. I did not approve of the method at all because it did not reflect depreciation and depletion as professional accountants require it to be set up, and I so stated, and as a result of that, the matter was given consideration. I think it should also be mentioned that under the agreement between the defendants which provides for payment to Texoma by the Natural Gas Pipeline Company, no provision was made for depreciation and depletion, but a sinking fund sum was allowed to be included as a charge. So I think that may have had something to do with Mr. Brown's thoughts on the matter. I would prefer that he should answer that himself.

You ask if it was intended to accomplish in a general way what depreciation and depletion would accomplish. No, I don't think that was it. The sinking fund provisions were not drawn up with any idea of being equal to depreciation and depletion, or of accomplishing the same purpose. They were drawn up with the idea of recovering over a certain period, by the amounts stated therein, a certain sum of money representing the amount of the original issue of bonds. You ask if the amount of the original issue of bonds represented the investment in the property and if the function of the sinking fund would be to return the original investment which, as I have indicated, is the object of depreciation and depletion. That is true if the sinking fund provisions were workable, but here is the point that should be considered, that the sinking fund was on a gradually increasing scale. It started very low annually and went to very high figures and though I cannot go into a discussion of the future of that company—it is not my province and was not at that time—I did bear in mind that these amounts in the later years were so high that the company might not be able to carry on this method of setting aside this amount to be considered as depreciation and depletion, because they probably would not be able to stand such high figures.

I do not know what you mean by your last question. If they are not making enough money to set aside the sinking fund in those later years, when it gets heavy, there obvi-

ously is nothing available for dividends, so I was not
1906 looking at the dividends. You are speaking of the recovery of that capital through the goal of a depreciation charge called a sinking fund figure. It may work out; but if the company's earnings do not reach those amounts, if they are not sufficiently high in amount to pay that sinking fund, they may find themselves in a hole there.

The object of the depreciation and depletion was to equalize the charges annually and arrive at the same results by accepted methods of annual charges which would be set up on the books, regardless of whether there was the cash there to set aside for it or to utilize for that purpose. As a matter of fact I think if you look at the years before 1934, you will find that before depreciation was set up they had quite a deficit in the sinking fund.

You ask if my recommendations would have been any different if I had found the same situation true as far as their failure to provide for depreciation and depletion was concerned for a gas company subject to the jurisdiction of the Illinois Commerce Commission in 1934. In any case where I found depreciation or depletion had not been provided, regardless of commission regulation as to accounting, I would draw attention to it. You know as well as I do that reports are coming out year after year on utilities which state that the retirement provision does not necessarily reflect the exhaustion or the wear and tear of the property. It is prescribed by the Commission and so it is set up, but that does not necessarily mean that we as accountants consider that, or for that matter anybody considers it the true accumulation of depreciation, so I do not want to answer your point by any yes or no, because I would have to look into each individual situation. It makes no difference whether the company was subject to regulation or not as to whether it is providing depreciation. It either is or it is not, regardless of whether a commission sets one thing up or says another thing shall not be set up.

My reaction would be identical whether or not it was an industrial, a utility, or any corporation that had assets that were consumed partially or wholly in its operations, it should set up a depreciation provision.

The retirement of the bonds would normally affect just the balance sheet because it is a depletion of the cash and a corresponding reduction in the bonded indebtedness.

The depreciation and depletion is obviously normally reflected by the charges into the income account.

Redirect Examination by Mr. Morgan Resumed.

The bond indenture and the terms of the bonds themselves provided for payment in 15 years from about the time of the beginning of operations. Those depreciation and depletion reserves do not accomplish that purpose. The depletion reserves will only do so if the reserves are drawn to the extent that the number of cubic feet multiplied by the unit rate equals that sum. When I am speaking of withdrawals, I am speaking purely of Texoma's withdrawals for its own purposes.

The fact that defendants did not set up depreciation at the beginning of operations has not affected the property value of that property or the condition of that property as at this particular time. (Objection by Counsel for Illinois Commerce Commission.) The fact that on the books a reserve for depreciation is set up by a charge to operations does not attempt to reflect the physical value of the property as of any date.

1907 Yes, it has been about 5 years since I first had this matter up and was discussing the matter and gave that report. You ask if as of the time they set up this depreciation rate of 2½ per cent on the pipeline property which was about three years after the pipeline operations had started, it was my thought that by the first of January, 1940, which is eight years after the pipeline operations had started that the condition of the pipeline would then be 80 per cent of its original condition. (Objection by Commission Counsel overruled.) My answer to that question is that the application of any annual average rate does not attempt to set up during the physical life of that property what its actual value may be. It is merly an average rate which starts with the investment in the early stage and leads if properly applied to the recoupment of the investment at the end. I am not in a position to state the rapidity with which physical depreciation may accrue. It is merely a recognition for accounting purposes of the necessity for a recording of that depreciation spread over the physical life.

Recross Examination by Mr. Slaff.

The annual amount is not supposed to represent the actual loss and serve as the value of the property because that it something that cannot be determined by arithmetic.

In using the expression "not actual annual loss and serves as value" I am trying to distinguish between physical and accounting depreciation of a machine which is running, which cost a sum of money and will last 10 years. That would necessitate the application of a depreciation rate for accounting purposes of 10 per cent per year. That machine may run very little one year, another year it may run quite a little, quite more than the average. I cannot say how the depreciation is affected by the varying usage, but I think there is general agreement that the machine does not physically depreciate purely in relation to the time that you have had it on your floor.

Yes, that depends upon what meaning I attach to the word "depreciate". I am speaking of accounting depreciation rather than physical depreciation; and the two do not necessarily strike the same curve or straight line or whatever it may be as the measurement. I am obviously not in a position to attempt to state the physical depreciation factor or the depreciation due to a variety of circumstances, such as obsolescence, inadequacy, and so forth.

1908 CHARLES W. SMITH, a witness for Federal Power Commission, recalled for further cross-examination testified as follows:

(January 10, 1940.)

Cross-Examination by Mr. Morgan:

I have been with the Federal Power Commission since July 1, 1936. Prior to that time I was with the Maryland Commission for a number of years in a position somewhat similar to that I occupy with the Federal Power Commission. In the Maryland Commission, my duties had to do largely with electric, gas, street railway, water, and telephone utilities. There was one company which distributed natural gas in the state of Maryland and that was the only company which involved the questions which are associated with the natural gas companies. Those questions had to do with a distribution company; but this company purchased natural gas from an affiliated company and we had to go back to the seller. That was in an informal rate case.

Several years ago, the Public Service Commission of

Maryland and the Public Service Commission of West Virginia had joint hearings involving two or more companies, including the company which distributed the gas in Maryland. It involved the companies which produced the gas, because both of the state commissions were interested in the cost of the production, and after these commissions each rendered separate opinions, it was necessary for me from time to time to go back and study the case in the light of current facts and advise the commission with regard to them. That took me back, of course, to the cost of production to a certain extent. The name of that company was the Cumberland and Allegheny Gas Company which distributed gas to Cumberland, Maryland. It was bringing gas from West Virginia. I do not know the exact distance over which it transported gas. I would say that 3000 miles is a rough approximation of the distance.

Upon coming with the Federal Power Commission in 1936 and up to the summer of 1938, I was dealing exclusively with electric regulation. Since 1938, the natural gas pipeline engaged in interstate commerce have been added to the enterprises or institutions made subject to the Commission's jurisdiction under the terms of the Act. This is the first rate case that has actually been on trial under that Act. There is a case in northern New York which was called ahead of this but did not reach this phase as quickly as this one. I do not know whether the case actually started before this one or not; but I look upon this case as having progressed much farther than the New York case at this stage. The case up there has passed the jurisdictional and other preliminary matters at this time. The initial proceedings were quite largely jurisdictional questions, but then they were followed up with questions, for instance, as to the source of gas and the gas reserves, and got down to depletion. They gradually got into all of the phases which we have discussed in this case. The commission has not put on its testimony as to engineering, accounting, and rate of return studies.

Cross-Examination Interposed by Mr. Booth.

As a matter of fact since the Natural Gas Act was passed we got into rate cases, and I have been deep into natural gas rate cases since that time up until the present. I would say that since the Natural Gas Act was passed, or

at least shortly thereafter, up until the present date, 1909 the major part of my work has been devoted to natural gas companies, involving many other companies in addition to this one.

Cross-Examination by Mr. Morgan Resumed.

In my Exhibit No. 186, I listed 31 gas companies, I believe. In my Schedule 5-A are listed 7 companies. You have asked that I name those which are confined to production or transmission activities, to the exclusion of distribution. The Houston Gas Company is a gas company which purchases and produces and transmits and sells at wholesale. The Lone Star has retail and wholesale. You probably want that excluded because of the retail business. The Panhandle Eastern Pipeline and Southern Natural Gas Company are transmission and production companies. On Schedule 5-D, I think the El Paso Natural Gas Company and Houston Gulf Gas Company would fit that description. I believe that is all.

On Schedule 5-F of the same exhibit, the El Paso Natural Gas Company, the Houston Gulf Gas Company, the Interstate Natural Gas Company, Southern Natural Gas Company and the Memphis Natural Gas Company fit the description of being engaged in transmission and in production to the exclusion of distribution. The Mountain Fuel Company sells at retail.

On Schedule 5, I have in mind the Arkansas-Louisiana Gas Company which has large transmission lines and production fields and sells a good deal at wholesale, and yet it sells a great deal at retail. We will probably exclude the Arkansas-Louisiana. Canadian River Gas Company would be another of the companies, as would also Chicago District Pipeline Company, the Cities Service Gas Company, Colorado Interstate Gas Company, the El Paso Natural Gas Company, the Hope Natural Gas Company and the Houston Gulf Gas Company. I would also name the Interstate Natural Gas Company. I have a little difficulty with the Lone Star Company, which distributes gas at Fort Worth, otherwise, it would be in the category but because of its retail sales in Fort Worth, you would probably want it excluded. The Memphis Natural Gas Company and the Mississippi River Fuel Corporation are transmission companies and have no producing fields. The Natural Gas

Pipeline Company of America, the Southern Natural Gas Company, Texoma Natural Gas Company, Northern Natural Gas Company, Panhandle Eastern Pipeline Company, the United Fuel Gas Company, and the United Gas Pipeline Company are all producing and/or transmission companies, to the exclusion of distribution. The Northern Natural and the Panhandle Eastern may have a small amount distribution. I believe that completes the list.

You ask if I am familiar with the physical conditions encountered by each of those companies listed in Exhibit 186 under Schedule 5 and the subdivisions thereof which I have classified as producing and/or transmission companies. I was familiar with the source of supply but as to the topography, I have a general knowledge that any person who has read some geography would know about it in the United States. I have just the information that I would get from an Atlas, except I have been to some of those places. I have made no detailed study of course. For instance, I have been up along the Mississippi Valley. I know something about the pipeline company which serves St. Louis in a general way from having seen the territory in an automobile and from a train window; but I would not know anything about the details of the physical structure of the earth, of the rivers, the detail of them, the depth, the width and so on.

At the time I prepared this exhibit, I made a study as to the sources of supply generally as to the fields. I knew the fields which supplied the lines. I have some information as to which of them depend upon one trunk line largely for their handling of that gas to the market, as opposed to those which have a system or network of pipelines connected with a great many fields. I know of course
1910 that the Panhandle Eastern and Northern, for instance, take gas from the Panhandle Field and from the Hugoton Field. I am not sure that the Northern takes also from the Otis Field in Kansas. It was the Panhandle and Hugoton field that I was especially familiar with as the source of supply for the Northern line. Colorado Interstate takes its gas from the Panhandle field. Lone Star has a wider source of supply than the other companies you have mentioned. I would classify it as a network. You are going beyond my depth when you ask me whether it can switch gas from one part of its system to another to meet shortages and things of that kind. I don't know which of these companies are in position to do that.

You ask whether I know the location of the markets of the Panhandle Eastern. Detroit is the final market. It serves a great many places enroute. I think Springfield, Illinois is one place and Indiana, one or two places, and then it goes on up to Detroit. It serves some communities in Kansas, if that is important. I have that information in my office and can give it at great detail. It has a large market, yes, if you consider the ultimate market and the places which it serves. It does not have a pipeline to Detroit. The terminus of its line is at a point near Dana, Indiana, adjacent to the Illinois-Indiana state line. There it turns the gas over to a line belonging to the Michigan Gas Transmission Company.

The Panhandle Eastern line runs in a general direction to the northeast out of the Texas Panhandle Field across the States of Oklahoma, Kansas, Missouri, Illinois, and Indiana. It crosses the Mississippi River. I imagine it crosses the Missouri, I don't have a very good map in front of me. I would not be able to go any farther than that. I don't know whether it starts in Moore County, Texas north of the Canadian River or not. It starts in the Panhandle field and goes in a northeasterly direction.

The Colorado Interstate runs north out of the Panhandle, up through the northeast corner of New Mexico, and on into Colorado. I do not know of any large rivers that that line crosses. I don't know anything about any topography of the country there that would indicate that there were any extraordinary hazards confronting that company.

The Cities Service Company runs out of the Panhandle to Kansas City and also takes from other fields in Western Kansas and Oklahoma. I do not know whether it crosses either the Missouri or the Mississippi River. You are getting out of my field when you get down to the topography of the country through which these pipelines pass. I do not know whether it delivers the gas to the Kansas City Company on the east or the west side of the Missouri River.

The Northern Natural Gas Company comes out of the Panhandle field and also takes gas from the Hugoton field. It crosses the Missouri River, I imagine, but it is confined to territory west of the Mississippi in its delivery points.

The transmission lines of Lone Star Gas Company are generally in two groups, the main group from the southeastern extremity of the Texas Panhandle to Ft. Worth and

Dallas, and there connects to the network of the transmission and distribution lines which extend through the central part of Texas and southern Oklahoma. The secondary group extends in a southwesterly direction from a point from Brownwood, Texas, to San Angelo, Texas, to
1911 which gas is delivered from the Colenian County and Brown County fields, westerly from San Angelo, Texas, to the Big Lake field, and thence to Girvin, Texas. I do not know how far it is from Wheeler County, Texas to Ft. Worth or Dallas. I know the company owns over 4,000 miles of mains and field lines, according to this report to the Federal Power Commission. That is the whole system. That particular line running from the Panhandle field down to Ft. Worth and Dallas would probably not be more than a few hundred miles long.

1912 S. E. CAMPBELL, witness for defendants, called for further redirect examination, testified as follows:

(January 10, 1940.)

Redirect Examination by Mr. Morgan.

I was called to testify on Exhibits 141 and 142 introduced in this case. In those exhibits, I used as our allowance for amortization an amount which together with interest figured at the rate of 1.35 per cent per annum compounded annually, would yield the total amount shown in those exhibits as the amount to be amortized up to the end of 1954, beginning January 1, 1939. I have prepared a revision of part of that exhibit.

(At this point counsel for the defendants produced a sheet described as a "revision of page 1 of Exhibit 141" and requested that it be marked for identification. At the direction of the Examiner, the document was marked Exhibit 210. The Examiner also authorized the witness to add to the top of the document the words "Revision of page 1 of Exhibit 141".)

Exhibit 210 is a revision of page 1 of Exhibit 141. It changes the figures in line 33, both in columns 2 and 3, and it changes the figures in line 34, in column 2 and column 3, and the figure shown in line 35 of column 3.

In Mr. Delafield's testimony on rate of return, he stated that he would prefer and at this time would be more apt

to choose 2 per cent as the proper interest rate for sinking funds; and on the basis of his testimony, we have simply revised page 1 of Exhibit 141 to include 2 per cent interest, compounded semi-annually, in place of 1.35 per cent which was the rate of interest, compounded annually, used in the original page 1 of Exhibit 141. So in computing the amortization allowance instead of using as an interest rate of 1.35 per cent compounded annually, I have in Exhibit 210 used a compound interest rate of 2 per cent compounded semi-annually. Compounding the interest semi-annually is a more conservative procedure and results in a lesser amortization allowance. I believe Mr. Delafield testified that that was the way he would do it at the time he testified concerning the 2 per cent.

I have a similar revision of a page of Exhibit 142.

(At this point, counsel for defendants produced a document described as a revision of page 1 of Exhibit 142 and requested the Examiner to permit the witness to add to the title thereof the words "Revision of Page 1 of Exhibit 142," and to cause the document as thus amended to be marked for identification. The Examiner authorized the addition to the caption and directed that the document be marked Exhibit 211.)

Exhibit 211 is the same as page 1 of Exhibit 142, with the exception of the revision of some of the figures. The first difference occurs in line 21 entitled "Value of gas reserves". On Exhibit 142, we use the value as submitted by Mr. Wallace of the gas reserves, which was later found to be in error and was corrected on Exhibit 146, and we have substituted in this revised sheet, the revised gas reserves value, shown in the last mentioned exhibit. The original figure was $13,288,552, and the revised figure is $13,334,775.

As a result of that one correction, that changes the figures by a like amount in line 25, columns 1 and 2, the 1913 figure in line 26, column 3, the figure in line 32, column 2. It is also a revision of the figures in line 33, columns 2 and 3, the figures in line 34, columns 2 and 3, and the figure in line 35. The changes in lines 21, 25, 26, and 32 are merely to conform to that correction by Mr. Wallace in the arithmetic of his exhibit from which the figure in line 21 of Exhibit 142 was taken.

In addition to the slight effect of the change in line 21, the figures in lines 33, 34, and 35 have been changed as the result of substituting a 2-percent interest, compounded

semi-annually, in place of a 1.35 per cent interest, compounded annually, as used in computing the amortization allowance in Exhibit 142. I have computed the amortization allowance on the 2 per cent semi-annual basis for the same reasons that I gave for computing it on that basis in my discussion of Exhibit 210.

(Exhibits 210 and 211 were received in evidence, subject to the objections and exceptions of counsel for each of the two commissions to Exhibits 141 and 142 respectively.)

I am familiar with the document from which Mr. Ostrander read some time ago, described in the record as a report submitted to the National Association of Railroad and Utilities Commissioners at its 50th annual convention in New Orleans, Louisiana, November 15 to 18, 1938. That Association has had another annual meeting since 1938. You have handed me a document styled "National Association of Railroad and Utilities Commissioners, Report of Special Committee on Depreciation" which was submitted to the Association last named at its 51st annual convention in Seattle, Washington, August 22 to 24, 1939. That is the same Association referred to in the document from which Mr. Ostrander read. Aside from variations in the personnel, the document filed with the Association in 1939 is a report of the committee which filed with the Association the report in 1938 from which Mr. Ostrander read.

The names of the members of the committee submitting this report are found on page 66. They are as follows: Asel R. Colbert, Wisconsin, Chairman; Steuart Purcell, Maryland; W. A. Dittmer, Illinois; A. B. Greene, Florida; Herbert J. Flagg, New Jersey; John C. Damon, Securities and Exchange Commission; W. J. Norfleet, Federal Communications Commission; E. H. Merrill, Utah; Claude M. Smith, New Hampshire; C. W. Smith, Federal Power Commission; A. J. Greer, Washington; G. C. Boyer, Virginia; C. Radford Berry, Pennsylvania; Francis T. McNamara, Connecticut; R. A. Wehe, California; and W. C. Loss, Colorado. This list shows 16 men on this committee. The report is signed by 9 of these men. Some of the names on the two committees are identical. Among those I find on the committee in both the year 1938 and 1939 are: Asel R. Colbert, John C. Damon, W. A. Dittmer, Herbert J. Flagg, A. B. Greene, E. H. Merrill, and W. J. Norfleet.

Beginning near the middle of page 25 of the 1939 report of this same committee to the association above referred to under the caption "Straight line or sinking fund method

may be used" and the succeeding two subdivisions, the second called "Sinking fund interest rate", and the third "Advantages of the straight line method", we read as follows:

(Counsel for the two commissions objected to the reading into the record the following excerpts by the witness who is not offered as a witness on depreciation and their objections were overruled.)

1914 "Straight line or Sinking-fund Method May Be Used:

"As a practical matter either the straight-line or the sinking-fund method, when properly used, accomplishes a spreading of the cost of depreciation. The former spreads the cost on a straight-line basis; the latter on a rising compound interest curve basis.

"If the sinking-fund method is viewed narrowly as the accumulation of a fund by means of annuities to cover replacement costs, it would appear incorrect to use it to record cost of present operations. To illustrate, the uniform consumption of a coal pile could not be accounted for equitably under a sinking-fund plan because when half of the coal was consumed its cost should have been charged to expense. Any method which failed to charge this cost to operation, on the theory that the deficiency would be made up by increased charges in the future, would be erroneous. If applied to utility plant, however, the sinking-fund method may be used if it is assumed, as stated hereinbefore, that the consumption of the investment in plant is progressing on a compound interest curve basis."

Under the sub-caption, "Recording of Sinking-fund Interest":

"Where the sinking-fund method is used the total annual depreciation provision required is the sum of the annuity and the interest. Both these amounts should be so recorded as to show operating income both before and after the inclusion of the interest component of the total provision for depreciation. This would make both corporate operating income and operating income which might be used by the regulatory authority in rate matters readily available from the income statement.

"The interest element of the sinking-fund method is sometimes charged as interest expense. This procedure is not desirable as it results in an overstatement of the earnings available for interest on bonds because gross income is determined before full provision for depreciation

of the plant. Investment counselors often make adjustment in income statements to reflect the so-called interest increment of the sinking-fund method in depreciation expense, but small investors frequently do not have the benefit of such advice and are apt to accept income statements at face value. It appears particularly desirable that accounting regulations be such as to require a correct showing of earnings available for investors."

Under the sub-caption, "Sinking-fund Interest Rate":

"The use of an interest factor in the sinking-fund method raises the question as to the rate of interest to be used. The theory is sometimes advanced that it should be approximately the same as the interest rate for bonds, or from 3 to 4 per cent. This theory is probably based on the premise that the sinking-fund reserve represents the extent to which customers have contributed to the capital of the utility through depreciation charges included in service rates and that, therefore, they should be given credit for interest on about the same basis as bondholders.

"Others claim the sinking-fund interest rate should be the same as the rate of return. This view is probably based on the theory that the sinking-fund interest rate should be determined from the earnings on depreciation funds. Since these funds are, as a general rule, invested in utility plant the interest rate indicated is the same as, or at least approximates, the rate of return.

1915

"The interest rate to be used is particularly important in rate-making procedure, especially where the sinking-fund method is used with an undepreciated rate base. Here the problem is largely one of equity to both customers and investors and the picture must be considered as a whole, including the rate of return allowed by the regulatory authority. It is doubtful if a specific interest rate could be advanced which would be equitable in all cases. Probably the nearest approach to a general rule is that the sinking-fund interest rate might reasonably lie somewhere between the rate of bond interest on the low side and the rate of return on the high side.

"Insofar as accounting only is concerned, neither the arguments in favor of making the sinking-fund interest rate equivalent to the rate of bond interest or the rate of return is persuasive. The rate of consumption of service capacity is not dependent on the cost of money nor does it bear any necessary relationship to the earnings on the depreciation funds. The funds might be invested in plant

and earn a high or low return, or even a loss; or in a separate fund with the same result. Again, in a given set of circumstances, they might be used to pay partial liquidating dividends on common stock to be employed by the stockholder as he saw fit. What happens to the depreciation funds, however, has nothing to do with the rate of depreciation of property. The cost of depreciation is not dependent on earnings but occurs regardless of whether any earnings result.

"Accounting for depreciation is concerned with the matter of spreading the cost of depreciation. Therefore, for accounting purposes, the interest rate to be used in connection with the sinking-fund method should be that which results in a compound interest curve estimated to approximate the rate of consumption of service capacity of the plant to the end that the cost of service capacity of plant be spread equitably."

That concludes the three sub-divisions which you asked me to read.

Recross Examination Interposed by Mr. Slaff.

On the first page of the report, which is on page 5 of the proceedings, the following language appears:

"This report should be considered as tentative as there are several matters which time has not permitted us to complete. Among other things, no discussion is presented covering the proper treatment to be accorded depreciation in rate proceedings or of court decisions relating to the subject. It is recommended therefor that this report be considered in the nature of a progress report for distribution to the members of the Association for their information, review, and criticism."

On the next page, the first paragraph reads:

"As pointed out, this report dealing as it does with a subject presenting so many controversial issues in regulatory matters, does not conform in all respects to the views of each individual member of the committee. However, it is believed that better understanding of the depreciation problem has been gained and that many parts of the report can be considered as acceptable to a majority of the committee.

1916 *Redirect Examination by Mr. Morgan Resumed.*

I am the Secretary of both defendants and as such have the custody of and responsibility for the records and books of account of defendants. The accountants who keep the accounts are responsible to me directly and I am responsible for the keeping of the books of account. I have had those responsibilties with both companies since December, 1933. I was not Secretary at the time I first assumed these responsibilities. I was Assistant Secretary. I was made Secretary in November 1934. During the period from December, 1933 to November, 1934 my duties and responsibilities were the same as they are now. The Secretary had resigned prior to my taking up the duties of Assistant Secretary and there was no Secretary during that period when I was serving as Assistant Secretary.

At the time I became responsible for the keeping of the books of account under the title of Assistant Secretary, beginning about December, 1933, the company had not recorded on its books any depreciation, depletion or retirements. Those subjects received consideration immediately after I became responsible for the books of account. The matter was discussed with the Manager, Mr. Brown, and with outside auditors, Peat, Marwick, Mitchell & Co., who had been employed to audit the company's records from the beginning up to the end of 1933. The firm last mentioned is the firm in which John A. Cook is a partner. We talked to him personally about the matter. Yes, I know why the company up to that time had made no book provision for depreciation and depletion. The company started out with the idea of operating on a revenue or income basis, having certain responsibilities in mind which had to be met from their income after taking care of their operating and construction costs; these obligations being namely, bond interest and bond retirements under the sinking fund provisions of the indenture. Anything left after those, of course, was subject to disposal by the board of directors as they saw fit. This included the payment of dividends if they desired.

The company was a closed corporation. Its stockholders and bondholders were one and the same, so that any money produced in excess of the company's requirements for operation and construction would ultimately go to the same people, regardless of how the book records were kept. The

life of the project was considered at that time to be about 15 to 20 years; and the management did not feel that depreciation and depletion reserves were necessary for use in the replacement of the property, and since they would not affect the amount of the income available for interest and bond retirements, they did not see any reason or any necessity for recording them on the books at that time.

Yes, it was possible to pay off their bond interest and the principal of the bonds as they matured without provision for depreciation and depletion. The provision for depreciation and depletion did not affect the cash produced by the company or the disposition of the cash prior to the time it was set up. Our change in policy during the year 1934 relating to depreciation and depletion was adopted to meet two criticisms that the company had received. One was through the Federal Trade Commission in their report on the investigation of natural gas pipeline companies, I believe under Senate Resolution 83, in which they criticized the company for not having recorded on their books, depreciation and depletion, and stated that under those conditions, the company could pay dividends out of capital. It had not paid any dividends at that time. They simply stated that it could. About the same time the outside auditors, Peat, Marwick, Mitchell & Co., were employed to audit the books of the two companies and they likewise criticized us on the same subject and along the same lines. The company did not feel that these
1917 criticisms were incorrect as far as the bookkeeping records were concerned, and agreed to adopt a policy that would meet their objections.

After a number of conferences with Mr. Cook and Mr. Brown in which a number of employes of the company sat, a committee of representatives of the owner companies was selected to consider the subject and arrive at a depreciation policy. Mr. Cook met with these representatives from the owner companies on one or two occasions, outlining his thoughts on the subject, and later this committee met in New York and arrived at the rates of depreciation that the company should adopt on its book records. These rates were arbitrary to begin with, as the various members had different ideas and they arrived at rather an arbitrary compromise based on the records that they had available on the past life of similar equipment in other properties. I mean the physical life. And they adopted rates that

would correspond with those physical lives. I believe I have the schedule of rates set up for the different classes of depreciable property (examining papers). Yes, these rates, which are the same rates which were carried on our books up to the beginning of 1938, were:

Main lines 2½ per cent; compressor stations, 6 per cent; telephone system, 8 per cent; meters and regulators, 7½ per cent; other main line structures, 7½ per cent; branch lines, 2½ per cent; gathering lines, 2½ per cent; gasoline plant, 10 per cent; tools, 20 per cent; automotive equipment, 25 per cent; furniture and fixtures, 7½ per cent; laboratory equipment, 10 per cent.

We used those rates of depreciation relating them back to the beginning of operations on January 1, 1932 until the year 1938. In 1938, the rates as applicable to Natural Gas Pipeline Company of America, only, were changed, effective January 1, 1938. Not all of the rates were changed but several of the rates in addition to the pipeline rate were changed. The reason for this was that at the time we had concluded a settlement with the Internal Revenue Bureau on the depreciation rates they would allow for income tax purposes, and purely for a matter of bookkeeping convenience we adopted the rates that the Revenue Bureau had agreed to. That was a compromise agreement for the purpose of income tax settlement.

We did not make the same revisions on Texoma's books for the reason stated by Mr. Cook, that we have never made a settlement with the Internal Revenue Bureau as far as Texoma's depreciation allowances are concerned. We never had a taxable income on Texoma and therefore have not had a settlement with the Revenue Bureau as far as Texoma's books were concerned. We left the rates of depreciation just as they were originally agreed upon by the committee back in 1934.

All of the owner companies are represented on the respective boards of directors of the two defendants; that is, all owners of Pipeline Company are represented on its board of directors and all the owners of Texoma are represented on its Board of directors. That has been true all along.

Recross Examination Interposed by Mr. Slaff.

The rates applicable to the Pipeline Company's property in 1938 and 1939 were: mainlines, 4 per cent; compressor stations, 4 per cent, telephone system, 4 per cent; other mainline structures, 4 per cent; branch lines, 4 per cent; meters and regulators, 4 per cent; tools, 20 per cent; automotive equipment, 25 per cent; furniture and fixtures, 7½ per cent; laboratory equipment, 10 per cent.

1918 *Redirect Examination by Mr. Morgan Resumed.*

Those are the only rates that the settlement affected.

1919 At the time we set up those rates of depreciation in 1934, it was not the object of the management and the officials responsible for the records to set up reserves for the purpose of returning to the owners their capital within the physical life of the field from which Texoma produces its gas. Those rates have nothing whatever to do with the life of the field. The rates were based on the usual allowance for physical depreciation of the depreciable property affected by the rates, and contemplated a 40-year physical life for the pipeline itself. For the other equipment, the life was conceived to be 100 divided by the rate set up.

In the matter of making provisions for depletion, we were discussing that subject at the same time we were discussing depreciation with Mr. Cooke and Mr. Brown and the other representatives. Mr. Cooke made a recommendation on the procedure that he thought would be appropriate for the company to adopt as its depletion policy, and this suggestion of Mr. Cooke's was adopted. The representatives of the owner companies and the company officials agreed to that procedure.

The recommendation was that we should first establish a date when the operations actually started. That was one thing that was necessary, that we should determine a date, for bookkeeping purposes only, when the retirement of acreage released should start. And he outlined a procedure by which the book costs would be reduced for acreage retired, and the company furnished him an arbitrary figure on the average reserves per acre, to apply

to his formula. This applied to acreaged owned as of January 1, 1933.

The total reserves based on the assumed content of 12,000,000 cubic feet per acre were divided into the book cost of the reserves, which gave us a depletion factor that was applicable to the acreage released. The company, for bookkeeping purposes, for reduction of the book costs to cover retirements, adopted the policy of taking the total cost as reflected by the books of all of the acreage and dividing that by the number of acres we owned on January 1, 1933, and arrived at a purely arbitrary average cost of $65.548 per acre.

We did not understand at that time that there would be no more acreage released after January 1, 1933. We knew we had already at that time released quite a number of acres, and there would still be more acres to release later. We had been releasing acreage all through the year 1933 and 1934 up to the time we fixed this retirement. We knew that that acreage already released was not in the property account at the time we made the adjustment. It was not our thought that we had released all of the acreage as of the time we adopted that policy that we would release. We realized we would release more as time went on. It was not our thought at that time that the acreage which we had released during 1933 and 1934 and which would be released after the time we adopted this policy was on the first day of January, 1933 worth $65.548 per acre. (Objection by Commission counsel overruled.) That we had no such thought is substantiated by the fact that we released it in place of selling it. We would have sold it if it had had value.

The amount of $65.548 set up on the books was the total cost of all of the acreage divided by the number of acres on hand at that date, namely, January 1, 1933. As far as the books are concerned, we have reduced the book costs for the acreage retired since January 1, 1933 at the 1920 rate of $65.548 per acre. Charging that off the books as we released it does not get our money back. The property account, so far as that acreage is concerned, in my opinion, does not reflect the cost of the acreage which we still retain.

Cross-Examination Interposed by Mr. Slaff.

When any utility retires any property, that act does not get it its money back.

Examination by Mr. Morgan Resumed.

With reference to the depletion rate set up at the same time, the same policy has been continued down to the present time. The only variation has been due to the fact that other acreage has been acquired at a different price than $65.548. In adjusting the total acreage cost to an average which would take into account acreage subsequently acquired, we have continued exactly the same method of calculating our rate of depletion.

Recross Examination Interposed by Mr. Slaff.

As a matter of fact that adjustment for subsequently acquired acreage makes a very small difference in the depletion.

Redirect Examination by Mr. Morgan Resumed.

This entry for depletion is made monthly. We set up in the depletion account just the amount of gas the company actually produces from its own wells. It is not the understanding of the management that that is all the gas that is going out from under that acreage. (Objection by Commission counsel overruled.)

We have made no correction or adjustment to take account of gas which may have been drained to or from the leaseholds of Texoma, so far as our book records are concerned. We have not known until recently any figure on that, and the expense of determining such a figure is quite a large sum of money. Since it did not affect the operations of Texoma, we did not see any necessity for correcting that figure. Whether there was provision made for the depletion or depreciation either, or however we handled our retirements, whatever was left after meeting the operating expenses from the operations of those companies belonged to the same people; namely, the stockholders, who also owned the bonds. Therefore, we have not in our bookkeeping dealing with those three matters, the retirement of acreage, depreciation and depletion, sought to conform our book figures to the actual physical conditions that obtained in the property of these two companies.

In Exhibit 141 and the revised sheet which has been marked Exhibit 210 depletion was taken into account in

the cost of gas reserves less depletion, to January 1, 1939, and is reflected in line 21. The figure of $12,402,884 reflected in line 21, column 1, was determined by taking the aggregate cost of the companies' acreage to January 1, 1939 less any salvage that might have been obtained. I mean the cash salvage or property which we could utilize, and reducing that by the ratio between the reserves under that acreage as of August 1, 1931, as testified to by Mr. Dickinson, who brought in the figures on that point, prepared by Mr. Peterson. We used the reserves under those same leases as of January 1, 1939, as testified to by Mr. Peterson. That ratio, I believe, was 78.0374.

As near as it has been possible to do so through our Geological Department, we have ascertained the original reserves as of the time that we bought them underlying the leases which we owned on January 1, 1939, and have accounted for the actual depletion of those leases as determined by the quantity of gas remaining now under them. Had we used our book depletion only, the figure we would have gotten instead of $12,402,884 would have amounted to $14,740,659, or $2,337,775 more than that set up in Exhibits 141 and 210.

1921 *Cross-Examination by Mr. Booth.*

The book depreciation at the end of 1938 was $11,620,210. That is the figure you asked for in Exhibits 141 and 210. As I compute the book cost, after deducting the book reserve as of December 31, 1938, the plant account for property other than leaseholds or reserves would be $38,210,269. If that amount be added to the total gas reserves, less the depletion reserve, in the amount of $14,740,659, the sum of those two figures would be $52,950,928, instead of a total of $59,748,824 for the capital expenditures per books for the physical property, including gas reserves in line 19, less viewed depreciation and less depletion. Under your computation, the total would be about 62 million dollars, if the book depreciation and depletion had been deducted from the cost of the physical property plus the original cost of the gas reserves.

Redirect Examination Interposed by Mr. Morgan.

I have used in my Exhibits 141 and 142 and in Exhibits 210 and 211 the actual original cost less the actual depreciation and depletion instead of the book entries dealing with those subject. That is the long and the short of it. I took the actual depreciation from other testimony. I took Mr. Biddison's testimony of viewed depreciation as the actual depreciation.

Cross-Examination by Mr. Booth Resumed.

I don't believe I am in a position to say that I have studied the report of the Special Committee on Depreciation which I read into the record this morning at Mr. Morgan's request sufficiently to express an opinion on it. Yes, one of the statements I read into the record bearing upon the sinking fund interest rate read as follows:

"Probably the nearest approach to a general rule is that the sinking fund interest rate might reasonably lie somewhere between the rate of bond interest on the low side and the rate of return on the high side."

The rate of interest on the bonds of Natural Gas Pipeline Company of America is 6 percent. I believe the rate of return which defendants claim they are entitled to in this proceeding is 8 percent. I cannot tell you what amortization allowance I would have arrived at in Exhibit 210 if I had computed the amortization allowance on a sinking fund method, had I used 8 percent instead of 2 percent interest, compounded semi-annually. I don't have with me a table which would show the figures for me. I did not bring that along.

We did not use a standard book or Moody's tables in computing the 2 percent interest, compounded semi-annually computation. That was computed out in detail. I am not familiar with what the general practice in a matter of that sort is. I have never been concerned with the sinking fund procedure, and I can not answer what the general practice is. I know that such annuity tables exist. I know they are used in computing amortization. If I had such a table available to me, I could try to make the computation.

1922 (At this point the document described as mimeographed copies of Exhibit 209 which was received

in evidence, as appeared on page 9725 of the transcript, were substituted for the original exhibit. A mimeographed copy was marked by the reporter, at the direction of the Examiner, as Exhibit 209 and was received in evidence, without objection.)

The computation stated in Exhibits 141 and 210, whereby in line 33 I arrived at the amortization allowance in the sum of $4,134,51, was made by one of my assistants and not by me. As I explained in my testimony concerning the exhibit, it was made under my supervision but I did not compute the figure. I could not state definitely just how he did proceed. I would use the regular amortization tables, and then check it. It would be necessary to check it, which he did.

You have handed me Financial Handbook, Second Edition, R. H. Montgomery, Editor. Beginning at page 1413 there are tables similar to those to which I have referred. I believe I could state approximately by the use of that table how I would arrive at the figure of $4,134,551, as shown in Exhibit 210. I think this table is on a semi-annual basis. I don't know how long it will take me to make this computation. I am not familiar with this particular table. It is not the table I thought it was when I first looked at it.

Yes, you introduced an exhibit under Exhibit No. 187 by Mr. Kleinman which showed that defendants had paid a dividend of $1,500,000 during the first 8 months of 1939. The company has paid an additional dividend during 1939 in the amount of $1.45 per share, and I think that figures $2,175,000 or a total of $3,675,000 for the year. These dividends have been declared and paid.

Mr. Morgan: I have one other matter. Mr. Examiner, on December 12, 1939, we offered in evidence the contracts on file with the Federal Power Commission of all of the pipeline companies taking gas from the Panhandle field and conveying natural gas in interstate commerce, namely, the Colorado Interstate, the Cities Service, the Panhandle Eastern, the Northern Natural, the Lone Star and the Consolidated Gas Utilities Corporation, I believe the name is.

In that same connection, we offered the schedules and contracts referred to in paragraph numbered A of Order No. 53 of the Federal Power Commission, dated July 5, 1938, and the information requested in paragraph D of the

same order which was filed with the Federal Power Commission by the same companies above named. That offer appears at about 9736 of the record and was a re-offer of the same contracts, although the other material was not offered before referred to in the transcript of another hearing and shown at page 5610. These contracts were offered and request was made that they be incorporated in the record by reference, since the contracts and the other material offered in connection with them are matters of record and found among the files of the Federal Power Commission.

We desire to renew the offer of those contracts and the other material offered in connection with them, and in this connection we wish to point out that the pipelines whose contracts are requested to be placed in evidence and the material taken from their reports to the Commission, which we desire to offer later, are pipelines which produce gas in the same field from which these defendants produce and transport their gas. The record shows that one of them transports gas to the city of Denver, and the Commission will, of course, take judicial notice of the distance between that field and the city of Denver.

The Cities Service transports gas from the same field and from other intervening fields to the city of Kansas City and to intervening points.

The Panhandle Eastern produces gas in the Panhandle, and also in an intervening field, namely, the Hugoton, and purchases gas in both of those fields, and transports it to a point at Dana, Indiana, and to intervening points.

The Northern Natural produces gas in the Panhandle, as this record shows, and from Hugoton and from Otis, another field in western Kansas, and transports that gas to Minneapolis, Minnesota, and to a number of cities along the way.

The Lone Star Gas Company, the record shows produces gas in the eastern part of that field and transports in the southeasterly direction across the southwest corner of Oklahoma to cities in northern Texas, including the city of Wichita Falls, the city of Ft. Worth, and the city of Dallas.

The Consolidated Gas Utilities Corporation produces gas in the eastern part of that field and transports that gas from that field and from other fields in western Oklahoma to points in western Oklahoma and southwest Kan-

sas or southern Kansas, which is a comparatively short distance from the Panhandle field, as the Commission would see from the notice it would take of the geography.

We submit that when we have shown that these pipelines are producing gas from the same fields and transporting it, some of them over the same general territory, and others over territory that is not shown to be different in material respects from the territory over which we are transporting gas, and certainly such differences as there are, namely, that as between Amarillo and Denver, there are no large streams, and companies like the Northern and the Cities Service and the Consolidated and the Lone Star, none of them transport gas across the Mississippi River, and I think only one of them crosses the Missouri River,—that we have made a different showing, a prima facie showing of comparable conditions entitling us to place that information in this record and to make admissible the rates which they charge and the prices which they charge for the sale of natural gas at wholesale.

In this connection, we point out that three of the witnesses who testified for the two commissions, namely, Messrs. Knapp and Ostrander and I think Smith—I am not sure whether it was Smith or Kleinman, but one of those two—testified that in a rate investigation, it was useful to the one who was charged with the responsibility for the inquiry, to have the charges of the other companies that are rendering similar service for the sale of a similar commodity.

In the light of those facts, we offer this evidence and submit that if that evidence be received, it will show that although our pipeline is conveying gas more than 950 miles, it is selling gas of all classes for less than any of them with the exception of one or two classifications of gas which are sold at a slightly lower rate by the Consolidated, which is a very short line.

And we renew our offer of that testimony and urge that it be admitted in evidence.

(Stamp) Federal Power Commission Docketed Jan 20 1940 HTS Docket Section Secretary's Office 100-2 S-109 F.

Air Mail

Jan 20 1940.

S. A. L. Morgan, Esquire,
c/o Natural Gas Pipeline Co. of America,
20 North Wacker Drive,
Chicago, Illinois.

Dear Sir:

Pursuant to my telegram of today, this letter is addressed to your offer in evidence of the material referred to at pages 10390-4 of the transcript in the proceedings re F. P. C. Dockets G-109 and G-[illegible]. This offer embraces: "the contracts on file with the Federal Power Commission of all of the pipe line companies taking gas from the Panhandle field and conveying natural gas in interstate commerce, namely, the Colorado Interstate, the Cities Service, the Panhandle Eastern, the Northern Natural, the Lone Star, and the Consolidated Gas Utilities Corporation * * *" (T. 10390); that is, "the schedules and contracts referred to in paragraph numbered A of Order No. 53 of the Federal Power Commission, dated July 5, 1938, and the information requested in paragraph numbered D of the same order which was filed with the Federal Power Commission by the same companies * * *" (T. 10390-1).

Counsel immediately amended his offer (T. 10399) to include certain maps filed by the six companies pursuant to Subdivision 7 of Order 31. This offer, save for the amendment, is in substance the same as a previous one (T. 9736 also 5610) denied by the Examiner on grounds already stated in the record (T. 9890-2).

Counsel submits that if these pipe lines produce gas from the same fields and transport it over the same general territory or territory not shown to be different in material respects from the territory over which the two respondent companies are transporting gas, there is a sufficient or prima facie showing of comparable conditions to make admissible the rates which they charge for the sale of natural gas at wholesale (T. 10392-3).

Counsel has stated in connection with the pending offer

that at least four of these six companies produce gas from fields other than the Amarillo field as well as from the latter field (T. 10391-2). A fact somewhat in contrariety to the substance and theory of counsel's previous statement pertaining to prima facie comparability.

The Rules of Practice and Regulations of the Federal Power Commission (under the Natural Gas Act) provide in Section 50.44, with respect to offers in evidence of matter contained in a report or other document on file with the Commission, that while such document need not be produced or marked for identification, nevertheless the provisions of the preceding Section (50.43) will apply. That preceding section requires that when relevant and material matter is offered in evidence by a party which is embraced in a document containing other matter not material or relevant, the relevant or material matter must be plainly designated, etc. Order No. 53 (paragraphs A and D) and Order No. 51 (Subdivision 7), require the filing of comprehensive rate and charge schedules and data, the monthly amounts of natural gas sold over a given twelve-month period with the charges therefor under each rate applicable, and the maps referred to by counsel.

The Examiner does not believe, having in view counsel's statement of the purpose for which such evidence was offered (T. 10393), that such an agglomerate offer complies with the requirements of the Commission's Rules (Sections 50.44, 50.43), above referred to. The Examiner, further, has taken the pains to ascertain the volume of material the six companies have filed and with respect to which counsel's offer apparently relates. The volume of this material is great and the offer must be deemed to conflict with the end that the Commission's rules referred to are designed to attain. Counsel's statement of purpose, that while the subject companies transport natural gas to a greater distance than any of the six companies its rates in all classes are less with few exceptions, does not present a practical formula by which the bulk of the matter offered can be reduced to feasible size. In short, counsel has not complied with the rules of the Commission applicable to an offer of such genre. But beyond this the Examiner is convinced the proposed offer is subject to the same objections mentioned in his ruling above referred to which denied a previous offer of such material. The Examiner, therefore, hereby denies the offer of coun-

sel to incorporate by reference the schedules and contracts filed by the six companies pursuant to paragraph A of Order No. 53 and the information filed by those companies pursuant to paragraph D of the same order, as well as the maps filed pursuant to Subdivision 7 of Order No. 51.

The Examiner also denies the offer of counsel for the Federal Power Commission of his exhibit for identification No. 212.

A copy of this letter is being filed with the Secretary of the Federal Power Commission for docketing as a formal document in the proceedings in re F. P. C. Dockets Nos. G-109 and G-112.

Yours very truly,
/s/ Ewing G. Simpson,
Trial Examiner.

EGS/SG
1/19/40

cc—Commissioner Draper
Chief Examiner Hampton
Mr. Staff
Mr. Booth
Secretary (3)
Files (2).

An exception is hereby given counsel for the two companies with respect to the ruling adverse to his offer; and to counsel for the two Commissions with respect to the ruling on Exhibit 212.

Ewing G. Simpson,
Trial Examiner.

1923 S. E. CAMPBELL, Recalled, Testified:

(January 10, 1940.)

Recross Examination by Mr. Booth.

Yes, Mr. Booth, I have completed my determination by the application of this table. I can make the same check for the 8 percent with these same figures and determine what the annual amortization allowance would be, approximately, on the basis of an 8 percent sinking fund interest rate rather than the 2 percent. That will be the approximate figure derived on the slide rule.

Applying the 8 percent interest to the sinking fund and compounding it semi-annually, I arrived at the annual amount to be set aside in 32 semi-annual payments, beginning June 30, 1939, of approximately, $2,470,000 as compared with the $4,134,000 on the 2 percent basis.

1924 ROBERT H. DELAFIELD, recalled for further cross-examination, testified:

(January 10, 1940.)

Recross Examination by Mr. Booth.

The figures beginning in line 14, at page 10,085 of the record, reading "$500,000" is obviously an error. It should be "$500,000,000." I have corrected my testimony, and while there are many minor mistakes that I won't point out, there are 6 or 8 that I might point out to you. It might affect your examination like the one I just referred to.

If you will look at page 10,106, the third line from the bottom, the third word is "of" not "off". The word "properties" should follow the word "producing", so that the expression would read "producing properties".

On page 10,123, line 16, the second word "not" should be stricken. I do agree.

On page 10,133, the last part of the long paragraph, there is one nought too many on each figure. It should read "Now, if you multiply that by a million, that is 6,000 MCF which at 50 cents is $3,000." The figure in line 14 should be "$3,000" and not "$30,000."

On page 10,145, the 14th line, the second word should be "peak" and not "big".

On page 10,147, the first line, the third word is "were". In the line directly below that word, the word "piped" should be "heated".

I do not think it is important, but on page 10,078, line 14, the record shows a question by Mr. Booth: "What were they?" I have a very distinct memory that the question was by the Examiner, and was "What was the percent increase?"

At page 10,088, line 6, appears the statement, "and obviously a serial of 100 percent." That should read "a serial and 100 percent sinking fund issue."

At page 10,115 and the following page, I stated:

"Well, he is most concerned with the risks that are of daily occurrence in the business and constant to the business, but I should qualify that answer, of course, by saying that the first thing that an investor would look at would be the management today, to ascertain whether it was a good management. Bad management is the worst kind of a day-to-day risk."

You ask why an investor would be concerned with the character of management. The first consideration
1925 in an investment, Mr. Booth, is credit, whether you are buying an equity or making an investment in a loan. The first consideration of credit is character. And the character of a company is its management. To use a loan for an example, a dishonest management would not be a good credit risk to the lender. Yes, I assume that the management, with respect to most of the large companies and utilities in the country, is honest. That is my position. The reason I said that the first thing an investor would look at would be the management is because, if the management is bad, I should think that that would debar, on the part of the investor, investment in a good property.

Even if the management was honest, that would also be the situation if it was incompetent. That would be incompetent management. The management is the character of a business. It is the directing genius of the business, the spirit of the business. If you remove management in the broad sense of the term, there is nothing left but the bare bones or the shell. The management is competent to undertake the various problems from time to time, and in fact every day which affect ordinarily the profitableness and the success of the business. Whether or not that in turn very seriously affects the risk of the investor in the enterprise, my answer is yes, that is the risk of bad management, which I was eliminating here.

Yes, it is the relative skill and ability and competence of the management in facing day by day problems that seriously affect the successful character of the enterprise and affects the risk of the investor. And if the management is unusually competent and able, they are better able to decide day by day problems which confront the management in determining whether or not the enterprise and the business is going to be successful and thus affect the risk of the investor who has put his money in the enterprise.

It is perfectly obvious that the management of ordinary businesses, unregulated businesses, the steel business or the candy business, must undertake day to day problems and decide those problems properly in order that the business may be successful, and that directly affects the risk of the investor in an enterprise. We are talking in all of this about management.

From that standpoint, it is the problems that the management must face and decide day to day which determine the success of the enterprise and affects the risk of the investor in the business.

I may have made a rather broad statement at page 10,113, when I said "risk is a possible future event which may be adverse to a business," but the risk in a given business, assuming, as I stated at the top of page 10,116, a reasonably good management which is the first step always, is the risk inherent in that particular business itself.

Now, if I may exemplify. A good management in an airplane business will run it well. A good management in a gas business will run it well, and we can see that the risks in the two businesses arise from totally different things and are different. No, it is not true as between industries. No, as between industries, it is not the quality of the management as to whether or not it is competent, able and skillful in deciding the day by day problems which constantly confront it, which determine the sucess-
1926 ful character of the enterprise, and directly affects the risk of the investor in the business.

I will answer a little more broadly, Mr. Booth. The position I am taking here is that if you assume good management of a large group of industries, then you cease to consider the risk of management in comparing those industries. If you assume a bad management of a large group of industries, you do not need to consider the risk of management in comparing those industries.

Redirect Examination Interposed by Mr. Morgan.

That is because good management, as I have stated, in the airplane business will run a good airplane business if it is possible, and good management in the gas business will run a good gas business, but that does not change the comparability of the fundamental risks in those businesses, nor do the investors so consider.

If the investor had knowledge that a management was bad, it is obviously that you could not get a cent for the business anywhere. I might qualify that by saying, bad enough. I suppose there is a degree of badness that other attractions might overcome.

Recross Examination Resumed by Mr. Booth.

Yes, it is true that the investor might not know anything about the character of the management. It is possible that the management might be skillful enough to conceal its charaster from an investor.

Redirect Examination Interposed by Mr. Morgan.

The risk of management ordinarily obtains in no greater degree in one class of business than in another. There are some few very simple industries where less skillful management is obviously required, but ordinarily, no.

Recross Examination by Mr. Booth (Resumed).

You ask me to assume that some additional natural gas reserves were discovered in the State of Ohio, and the management of our company was confronted with the problem as to whether or not its business made it desirable to acquire part of this additional quantity of natural gas acreage in this new field, and to further assume that our company had an investigation made of its present reserves and prospects of business during the next few years and decided not to make that additional investment or the investment in the additional acreage. You also ask me to assume that a few years later the business of the company grew somewhat more than had been anticipated by the company, and it did not have enough natural gas reserves. You ask me to state whether or not the decision which the management made at that time directly affected the risk of the investors who had put their money in the business of our company.

I think that that illustrates my point perfectly, in that had it not been the natural gas business, no question of purchasing or not purchasing reserves, no question of the future supply of gas, would have arisen. The risk, to my

way of thinking, arises from its being the natural gas
1927 business, and not from the management. Certainly, the question of whether or not the management decided on a certain day not to put any money into that additional acreage has a direct effect upon the risk of the investor; but if it were not in the natural gas business, they never would have to make that decision. Any management has to make comparable decisions, and, therefore, I eliminate the question of management in trying to compare the businesses.

No, I am not denying that the management of ordinary business is not confronted with day by day decisions in the conduct of that business which directly affect the profitableness of the business; but the same is true of the natural gas business.

Recross Examination Interposed by Mr. Slaff.

I have not said that there is no difference in degree between the natural gas business and any other business as to that element of risk. I could not say that. There is a difference in degree as to that risk among all businesses. It might be very hard to decide just what the degree was, but there is. I think there is a difference in degree between the natural gas business and unregulated industry as such.

You ask if it is my positions that the risk of the day to day decisions is greater in the natural gas industry than in unregulated industry, or less in the natural gas industry than in unregulated industry. In one type of decision it would be greater. In another type of decision it would be less. In the case of the natural gas business, if I may borrow Mr. Booth's example, it is a greater decision for a natural gas management to have to decide whether they will buy a huge inventory of a product, to go over an extended period of years, than it is for the flour miller to decide to buy an inventory of wheat which he hedges simultaneously. In that particular instance, the risk is in favor of the gas company. Now, as against that, if I may go on, it is less of a decision, perhaps, to decide whether or not they will buy $5,000 worth of pipe today than it is for the man in the chemical business to decide whether he will buy a newly invented retort.

Recross Examination by Mr. Booth (Resumed).

You ask me if, when this company decided in 1931 and 1932 to acquire certain acreage with which it intended to have an adequate supply to serve the City of Chicago and the territory that it contemplated serving for a period of 15 or 20 or 25 years, they made that decision, and therefore were not called upon to decide that problem again after they had a survey made of the gas acreage which was or was not profitable. I think you are wrong on that, Mr. Booth. The moment they made that decision, they had a continuing problem as to what they should do with that reserve acreage. In other words, they had to determine whether they should continue to carry reserve acreage by rentals and thus reduce their profits, or whether they should take on additional acreage to meet possible future demand which did not exist at the moment. That acreage from that time on is a constant problem.

It might be a little exaggeration as to a producing company to say that they had to make day by day decisions as to the handling of that acreage and that such day by day decisions affect the enterprise. It is a constant problem. Your acreage problem is a constant problem, and your reserve problem, of course is too. Acreage is an incident of the natural gas business.

1928 You ask if it is the decisions that the management is called upon to make which affect the profitableness of the enterprise and the risk of the investors in the business. We take a different position on that, Mr. Booth. I say that the fact that acreage is an incident to the gas business produces the necessity for decision. Yes, the decision of a bad management will ruin the company, but I always assume good management.

It is the act of the management in deciding the acreage problem one way or the other which is going to have an effect upon the profitableness of a business. It is true; but if it were not for the risks that are inherent in the natural gas business, that decision would never have to be made. The problem seems to me to be easier if you look back to the fundamental risks rather than to some in the intermediate stage. The risk in the gas business is the necessity of maintaining acreage, maintaining a balance between acreage and producing lands, being able to have enough reserves ahead, and being sure that you won't lose

your gas. Those are problems inherent in the natural gas business. I don't know how much additional acreage this company has acquired since 1930. I may have known, but I don't remember.

(At this point the witness was excused to permit S. E. Campbell to conclude his testimony. Thereupon, Robert H. Delafield resumed the stand and his cross examination was continued by Mr. Booth.)

No, I do not know approximately how many strikes there are in the utility business generally in the course of a year. I can remember the strike on the Consumers Power Company at the Thornapple plant which shut that down. We had a strike during the same year in our gas plant in Toledo. During the same year, we had a threatened strike and were under guard in the State of Kentucky. Those were all within a one-year period, which year I should say was 1934. We had one strike and walk-out that same year in a compressor station of the Manufacturers Light & Heat Company, which shut the station down. I am not quite certain that that was 1934, but it was all within that same period.

In the number of disturbances, the ones I have mentioned are much less than those in the automobile industry. I should say that in the utility industry, generally speaking, there are fewer strikes than in the automhile industry. I said in the number of strikes. In the same one-year period I previously mentioned, we had a strike in an electric generating station in Dayton. They come to your mind pretty fact when you try to remember them. I could not answer as to the number of labor disturbances that did not result in strikes. Prior to that period, we were very disturbed because of the character of labor in our experience in the gas business in the Appalachian region, and we had a very hard time.

I think it is true that, generally speaking, the labor problems are much more serious in character in unregulated businesses like the automobile business and the steel business, than in the utility business.

I take issue, Mr. Booth, with your word "regulated." I do not think it is the regulation that reduces the number of strikes in the utility business. That has nothing to do with it. I think it is true as I have said that labor strikes and labor disturbances over the history of the utility
1929 business are relatively less than the labor problems in unregulated businesses like the automobile busi-

ness and the steel business, but I could not prove it. I said that is true. May I supplement my answer, Mr. Booth, by remaking the point that the seriousness of a labor disturbance or strike is not always in its frequency or the number of men involved. That is especially true of the difficulty we have with labor in our business.

Recross Examination Interposed by Mr. Slaff.

It is the difference in the character of the business between so-called regulated and unregulated businesses which account to a large extent for the difference in the number of strikes and labor disturbances, in that the regulated industries are those normally in which the public at large is considered to have a large stake in the regular maintenance of service as contrasted with unregulated industries. That is the greatest deterrent to strikes in the business.

It might be true that another great deterrent to strikes in the utility industries is that the wage levels are generally pretty high, higher than in business normally. I am not at all sure that it is true. It might be true. It is not necessarily true that employment is more regular in the natural gas business, on account of the large amount of casual labor which you use.

Recross Examination by Mr. Booth (Resumed).

You ask concerning a credit loss suffered by Natural Gas Pipeline Company of America as a result of rate reduction. It is my impression that there never had been any determination by regulation of that rate, but it is also my impression that when this line was built and went into the business of supplying Chicago with natural gas, that the question of regulating the rate at the city gates was not up. It is my impression that this company at that time was free of regulation. I may be wrong in that. The controversy arose over the efforts of the State of Illinois to pass upon the reasonableness of the price paid by the Peoples Gas Light & Coke Company to Chicago District Pipeline Company.

You ask if it isn't a fact that the loss of money did not arise from what is known as an ordinary credit loss, but arose from the fact that the State of Illinois was endeavor-

ing to determine what constituted a reasonable price for natural gas. Well, a credit loss arises because the debtor has not the money to pay, and this debtor did not have the money to pay and a loss resulted. I do not seek beyond the fact that the debtor did not have the money to pay.

No, I don't think there would have been any question about the Peoples Gas Light & Coke Company's and the Chicago District Pipeline Company's ability to pay the contract price if the State of Illinois had found the price fixed in the contract to be fair and reasonable.

At page 10,105, beginning with line 13, I testified: "In other words, when a company goes and buys new acreage, they must do it with their own money. They cannot borrow money for that purpose." That means they cannot borrow money for that purpose. Al I meant by that statement was with that restriction in the mortgage indenture, the company could not borrow money for that purpose under that issue.

1930 At page 10,095, line 2, I testified: "In addition to which, the enormous increase in the use of natural gas, if anything, adds to the risk of depetion and exhaustion." The problem of depletion is not substantially taken care of if adequate allowance is made for depletion and depreciation. If you figure on creating a depletion reserve over a 14 year life of a field, and the life is only 10 years, and that gas is all gone, you are just as short in your depletion reserve as if—

You ask if provision for depletion is made on a unit basis, the amount of natural gas that is withdrawn or sold, then the problem of depletion is substantially taken care of. No, because it is not a problem within the control of this company that I had in mind. A great many companies are operating in this field, and they are taking out a great deal of gas. All of the reserves and all of the amortization is figured on a basis that so much will be taken out, and the increased use of gas increases the risk that the life of the field will be shortened, in which case your depletion or your amortization period will not be completed before exhaustion.

The amount of depletion is not determined on a basis of so much for each thousand cubic feet of natural gas that is taken out of the field. Each company operating in a field takes gas out of it. This company figures that it will take out so many million feet, and that the other companies will take out so many million feet, and based

on an estimate of the life of the property, they fix a unit amount per unit taken out. Now, the other company comes along, say there are only two in that field, and it takes out ten times as much gas as this company thought the other was going to take out, and the exhaustion of the field is therefore much quicker, and this company may have taken out exactly the number of units that it thought it was going to take out and charged exactly the depletion charge to each individual unit, and it would still have lost out.

One company does not charge for each thousand cubic feet of natural gas withdrawn by the other people in the field; only for the thousand cubic feet withdrawn by them. You ask whether or not if all the natural gas is withdrawn by some or all of the companies, and if they all charge on a unit basis according to the amount of natural gas that is in fact withdrawn by them, then do they take care of the depletion of the entire field. They take care of the depletion of the entire field, but the first company I mentioned here gets approximately one-tenth of its depletion reserve, and the second company ten times its depletion reserve.

If the first company loses some of its natural gas, it is of course possible that it is taking natural gas from some other company. I am not saying that it is true in this case. I am simply giving an example. That would not be true if there were just two of these people. The example I used assumed that there were two of these people, and number 2 gets out part of what number 1 was going to take, because he took out 10 times as much as was contemplated. In that case, number 1 would not be compensated for what he lost to number 2.

You ask how the normal temperatures to which I referred are arrived at. We use four or five principal cities in our territory where there are United States Weather Bureaus and where weather records exist back until I think 1852. We consider as normal for that general territory the temperatures as shown for those cities. At this moment I am sorry I do not know whether I used the average or the mean. I have the table here which I will be glad to give you. The figures I read yesterday are the monthly deviation from normal, the month being from the 15th to
1931 the 15th, corresponding to the billing month, and are the composite figures for the cities of Cincinnati, Pittsburgh, and Toledo. Normal is an average for a period

which I think goes back to 1852 on down to the present. It has changed, as I remember it, not at all in that time. It may change from year to year, but over a period, the normal temperature has not changed as much as one degree.

Recross Examination by Mr. Slaff.

At the end of 1938 there were 12,304,282 shares of Columbia common stock outstanding. There has been no appreciable change since then. I don't know what Columbia common stock is selling at today. It closed last night at 6¾. It has been selling around 6 for the last week or two. It rose to a high of either 7⅛ or 7¼ on Monday, and has since gone off to 6¾.

947,845 shares of 6 per cent preferred, $100 par value, are outstanding in our company. We also have a $5 preferred, or rather a 5 per cent preferred. There are 40,466 shares of this 5 per cent preferred stock outstanding. The par value is $100 per share. My recollection is that the 5 per cent last sold at about 70. It is very inactive. I do not believe it sold yesterday. The bid and asked was 76 and 78, I think.

The 6 per cent preferred is selling at about 10 per cent off. That sold yesterday as I remember it at 90¾. That stock has risen quite rapidly in the last two weeks.

We have three outstanding bond issues, all bearing 5 per cent; a very small issue is due in 1952; a $50,000,000 issue is due in the same year; and a $50,000,000 issue is due in 1961. I think both large issues are selling at a premium. At present they are selling at from 104 to 104⅛.

There is one other issue of preferred stock there. We have 123,600 shares of 5 per cent, $100 par value, preferred stock listed on the New York Curb, and the last sale I saw I think was 65.

Question by the Examiner.

That is the complete financial structure of Columbia.

Redirect Examination by Mr. Morgan.

That 5 per cent preferred which I first mentioned is selling at about 70. That is a $100 share. It is a different series of the same issue as the 6 per cent preferred. The stock which sold at 6¾ yesterday is a no par value stock

with a stated value on the books of $1, and a book value due to the capitalization of the company under orders from the Securities and Exchange Commission of approximately $14. I do not have that exact figure. It is selling at a little less than 50 cents on the dollar.

Recross Examination by Mr. Slaff.

During my direct testimony, I mentioned Godfrey Cabot and that organization. You ask if they had operated carbon black plants in the eastern fields. They used to, Mr.
1932 Slaff, operate carbon black plants in West Virginia, and I think in eastern Kentucky. I am not so sure of the latter; but to the best of my knowledge, they have not operated any carbon black plants in the Appalachian fields for some years.

I am under the impression that their ceasing to manufacture carbon black in the east was due to the law, though I am not sure that the manufacture of carbon black in West Virginia is prohibited by law. I am not sure that it is in Kentucky. The price of gas in the fields in that section of the Appalachian area, to the best of my knowledge, has not changed a great deal in the last 15 years. It has changed a great deal in the last 30 years, but not going back to 1926 and 1927.

Redirect Examination by Mr. Morgan.

Yes, I have run into some strikes among regulated concerns in my travelling around, like taxi companies, street railways and railroads, and companies of that kind. I am speaking over a period and not just at this particular time.

Cross-Examination Interposed by Mr. Slaff.

No, I did not happen to see the report of the Railway Mediation Board the other day that there were no strikes under its jurisdiction except one short airplane walk-out of the ground crews during this past year.

Mr. Booth asked me about the risk involved in the day to day decisions. Those are not the kind of risks that I have taken into account in arriving at a proper rate of return, the risk that management might make a bad decision because of incompetence or deliberately do it because of a lack of character.

The risk that I have considered is the risk that however competent the management and however wise the decision may seem to be at the time the management makes it, that because of the character of the business and the circumstances that surround the business, it may turn out to be a bad decision. A decision to invest $15,000,000 in a gas reserve would subject the company whose money the decision affected to as much danger of loss as would 15,000 decisions involving $1,000 each.

I never heard of a regulated concern applying to a regulatory body for an increased rate of return, as compensation for risk because of the danger that the management might turn out to be bad or incompetent. (Objection by Commission Counsel overruled.)

1933 JOHN A. COOKE, a witness for defendants recalled for further cross examination, testified:

(January 10, 1940.)

Recross Examination by Mr. Booth.

You have asked me to read into the record the definition of depreciation appearing at page 2 of the Federal Power Commission Uniform System of Accounts for Natural Gas Companies. The definition appearing on that page under No. 14 reads:

"Depreciation as applied to depreciable gas plant means the loss in service value not restored by current maintenance incurred in connection with the consumption or prospective retirement of gas plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand, and requirements of public authorities, and in the case of natural gas companies, the exhaustion of the natural resources."

You ask if in determining the amount of depreciation which should be set up for this company, if I was auditing its books, would I be guided by that definition of depreciation. At the present time no, but if it were under a regulatory commission and the accounts were under regulation, we would have to be guided in determining the company's

action by the instructions contained here if they have not been upset for some reason or other by law. It is a question of the manner of keeping the accounts. If these are the regulations, then the company must comply with them for its books.

No, I do not know that this company is now subject to the jurisdiction of the Federal Power Commission. I have not seen the classification of accounts applying to these companies, which you say the Federal Power Commission has recently promulgated. I will take your word for it that it has been issued in the last few weeks. I don't know. If that were true, then that definition of depreciation would be followed for accounting purposes, in accordance with the Commission's requirements.

Redirect Examination by Mr. Morgan.

When I said it would be followed if the company was under the regulations, I meant the accounting regulations. The regulations pertaining to the company in question, meaning that that would be applied under those regulations of the Commission as being the proceedings and accountings which they must follow.

No, I do not know that there is a motion for rehearing pending before the Commission going to those accounting rules. I think I covered that possibility when I said that "unless it was upset" it would apply as it was written—unless it was upset by legal proceedings.

Recross Examination by Mr. Slaff.

1934 No, I am not familiar with definitions of depreciation as they occur in other systems of accounts, such as the Federal Power Commission System for Licensees and Public Utilities, the Federal Communications Commission and similar systems.

I do not keep the books, but check them to see that the company has carried out the generally accepted principles of accounting. When I certify a balance sheet or an income statement, I attempt to have that reflect as accurately as I can the actual financial facts of the company within the observed or accepted limits. I have to say that, because there are certain things in there which by reason of our limitations we can not cover.

1935 W. C. GILMAN, a itness for defendants, recalled for further cross-examination, testified:

(January 10, 1940.)

Recross Examination by Mr. Booth.

Yes, I have repeatedly referred in my testimony to the fact that the securities of natural gas pipeline companies provide for the retirement through the sinking fund method and are of rather short terms. I have characterized the sinking fund requirements as of a heavy character. I am not implying that that feature was disadvantageous to the company which was issuing the securities and made it difficult for it to sell the securities. As a matter of fact, it makes it easier for them to sell the securities and makes the securities more attractive to investors,—a particular type of investor.

That is a specific characteristic which gives them their peculiar attractiveness at this time. Institutions, like insurance companies, which have a continual or almost continual inflow of funds from their policy holders, must put their money at work to earn a return. In times of low interest rates as we are in now, where bonds are sold with a 3¼, 3½ or 3¾ per cent coupon, the investing officials of insurance companies, through past experience, are generally of the opinion that we will pass through this phase of very low money rates, and maybe in 5 or 8 years get back to a period where they will again be able to get good first mortgage bonds on a [illegible] per cent basis. Therefore, they are naturally anxious not to tie up their funds any longer than possible in these low coupon bonds, and a natural gas pipeline issue that has a total maturity of 15 years, with 100 per cent payout, has an average maturity of only 7½ years, so they have got their money to work at a rate low admittedly, but in 7½ years they will have half of their money back, and perhaps at that time they can be putting it into 4, 4½ per cent or 5 per cent securities.

The issuing company at this time has its choice of either a public offering or a private sale to institutions. Just thinking quickly here, I would say that probably in the last five years there have been more of those bonds in volume placed with institutions at private sales than sold through public offerings. Even in the case of public offerings, institutions of the character that I have referred to are frequently very large buyers of this class of securities.

Redirect Examination by Mr. Morgan.

In my replies to the last few questions by Mr. Booth, I have been talking about bonds. The whole discussion has been on bonds.

You ask what the fact that these attractive features have been added to the bonds of the natural gas business has done to the risks, so far as the equity holder is concerned. The equity holder, the person who buys the common stock of any company, owns the company, and he essentially carries the risk of the enterprise. If he wishes to borrow money from a lender and meets the lender's terms and promises to pay the money back well in advance, or substantially in advance, of the estimated life of the supply, in the case of natural gas companies, the buyer of the bond is, to that extent, shifting the risk to the equity holder, or at least keeping the risk with the equity holder.

1936 You ask what the effect of that has been on the issuance of original equity securities or the refinancing of equity securities. In recent years, there have been practically no offerings to the public of equity securities of pipeline companies.

There are always continuous tradings of the common stocks of pipeline companies whose securities are listed on the Exchanges; but that does not bring out any new securities.